Personnel

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AMERICAN MANAGEMENT ASSOCIATION
330 WEST 42nd STREET NEW YORK 18, N. Y.

JAMES O. RICE, *Editor;* M. J. DOOHER, *Managing Editor;* ALICE SMITH, *Associate Editor;* VIVIENNE MARQUIS and EVELYN STENSON, *Assistant Editors*

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PERSONNEL is published bi-monthly by the American Management Association at 330 West 42nd Street, New York 18, N. Y., at one dollar per copy or five dollars per year. Vol. 23, No. 5, March, 1947. Reentered as second-class matter July 30, 1941, at the post office at New York, N. Y., under the Act of March 3, 1879. Copyright 1947, American Management Association.

Changes of address should be forwarded to the publisher *one month in advance*, and postal unit numbers should be included in all addresses.

.....Strictly personnel

Survey of Supervisors' Policy Manuals

"Train the leaders." Many executives agree with the company president who said if he had to curtail training he would scrap employee training and concentrate on supervisors. Nevertheless, while a great many companies have issued employee handbooks explaining management policies, in relatively few organizations does one find supervisors' policy manuals. Indoctrination in company policy is the most important item in a vigorous supervisory training program. Supervisors bridge the gap between top management and employees; what they say comes from on high so far as employees are concerned. If it doesn't jibe with what the shop steward gets from the front office, management prestige is weakened, supervisors resentful.

In a survey preparatory to a forthcoming research report on *How to Prepare and Maintain a Supervisors' Policy Manual,** AMA made a random sampling of member companies to learn what they thought on this subject and whether they had policy manuals. Some replied they were using such handbooks to good advantage, that policy manuals were an excellent means of staff development, gave foremen a real sense of being part of management. Many respondents said they were planning to compile a manual. Some mentioned the scarcity of management literature on supervisory manuals. AMA then contacted a selected group that were familiar with this subject. These executives responded generously by describing their manual programs in detail and sending in their manuals for analysis. The Association's research staff followed up this fruitful source of information, made plant visits in several cities, talked to foremen as well as top management, supplemented these direct contacts by correspondence with many more concerns throughout the country.

About 200 supervisors' policy manuals were reviewed and, with permission of the companies, many were exhibited at the recent AMA Personnel Conference in Chicago. The exhibit attracted wide interest, and it is apparent that the relative scarcity of supervisors' policy manuals as compared with employee handbooks is not due to lack of appreciation of their value.

These are not manuals of operations, do not contain process specifications or job instructions. They cover the management or administrative functions of supervisors. They are not a substitute for direct training media but have, rather, the character of a follow-through on formal training: they are reference guides that stay right on the job. Personnel practices seem to be the predominating subject matter. Some manuals cover all administrative aspects of the supervisor's job—e.g., production planning, work simplification, materials, machines and equipment, accounting necessary for cost records and other purposes.

In discussing their policy manuals, many executives said that while their goal is to release manual material on all administrative duties of foremen they prefer to build up the manual gradually. Executives unanimously stressed the importance of issuing a manual that supervisors really want. Many felt also that the initial manual should be very simple, that "a large book frightens people." A great many companies develop their policy manuals with the active cooperation of foremen and other supervisors.

A supervisors' policy manual eases line-and-staff relationships by specifying just how far the foreman should go in any activity and where staff departments enter into it. It is just as important for staff men to know what Joe Foreman is supposed to do as it is for the foreman to know what he should turn over to the specialized services. The policy manual provides all supervisors with the framework within which they are authorized to

* Distribution of this report will be restricted to *company* members of the Association until six months after publication. Tentative publication date is May 1.

act. This means that the individual foreman gets a clear picture of:

1. What he may do on his own.
2. What he may do without prior clearance with superiors, but must report subsequently for post-audit.
3. What he must clear with superiors before taking action.
4. What is the source of matters that come to him from staff departments, and what is the final disposition or general aim of higher supervision or of staff departments to which he ultimately routes them.

Admittedly, the production and maintenance of a supervisors' policy manual is more difficult than publication of an employee handbook. The latter, after all, treats policies broadly and requires only infrequent revision. With the cooperation of the firms participating in this survey, AMA will be able to pass on suggestions in its new research report which companies, both large and small, may readily adopt in compiling and issuing a supervisors' policy manual.

The Cost of Job Evaluation

While the costs of job evaluation are naturally of concern to the company embarking on an evaluation program, comparatively little specific information on this subject has been available up to the present—undoubtedly because of the variety of factors which determine those costs.

These factors, according to a recent Dartnell study,* include the size of the company, the type of organization (centralized or decentralized), the type of job evaluation study used, as well as the extent of the study to be undertaken. "If, for instance, the job evaluation study is to include only job analyses, classifications, and the setting of wage rates," the Dartnell study points out, "then it will be less expensive than a program which will include not only these essentials but will also provide for better methods of work performance and possibly the addition of a merit-rating program or a wage incentive plan."

As the foregoing paragraphs suggest, this discussion is concerned with the costs of installing and maintaining the job evaluation program—i.e., the actual costs of operation. Costs of job evaluation, in this sense, should not be confused with the total costs arising from salary adjustments made as a result of the program. These, of course, might far outdistance the operating costs, though—if soundly incurred—such costs might, in turn, be offset by lowered production costs and other benefits to the company.

"There is much to be said," the study continues, "for combining with the job analysis a study of the various jobs which will result in simplification of routines or better methods of work performance. But it should be understood that slowing up the program to include such procedures will increase costs. It is possible to get such by-product results without slowing up the program, however. This may be done by deciding beforehand that the job analysts are to make notes of necessary changes at the time they are preparing job analyses. After the job evaluation program has been completed, the analysts' notes can be consulted for information on matters that need correcting. Thus the essential data are secured without time-consuming methods."

Several alternative methods of making cost estimates exist. In some cases, costs are estimated in accordance with total payroll; in others, they're based on man-hours worked. When the former method is used, Dartnell observes, the cost of installing job evaluation in some large companies runs around .5 per cent of yearly payroll, with maintenance costs of about .1 per cent of payroll. Percentage costs would undoubtedly be higher for smaller companies.

Where costs are estimated on the basis of man-hours worked, they again vary in accordance with the size of the company. In a paper delivered before the Colorado Labor Institute, Nathan P. Feinsinger observed that in the War Labor Board's experience most programs have involved a total expenditure of one cent or less per hour as a plant-wide average for all employees. Some cases have required more, but rarely if at all has the initial cost exceeded five cents.

Cost estimates by management consultants vary. Some run from $25 to $35 per job, up to $50 and $100 per job, depending upon the complexity of the job and the extent to which all jobs in the plant have been standardized and written up; the time required to complete the job evaluation; the extent of the job evaluation; the degree of cooperation extended by management, employees, and the union; and other factors.

* *Job Evaluation Methods and Procedures,* Report No. 531, The Dartnell Corporation, Chicago, 1946.

A Security Program for Supervisors

With the advent of supervisory unionization, management has become increasingly aware that supervisors share the rank and file's sentiments on the subject of security: They want to know there's a net beneath the economic tightrope. As yet, however, few companies have made any serious attempt to tackle this problem. An exception is Libbey-Owens-Ford Glass Company, which has a noteworthy program whereby salaried supervisors (as distinct from working foremen) are assured a definite measure of employment security.

This program, reports E. H. van Delden, director of industrial relations, was installed last year—at a time when, of course, the company was doing plenty of business and supervisors in general had little reason to be apprehensive about job tenure. The timing of the installation is significant: If supervisors are to be made to feel secure even in the event of a downturn in business, they should know about it before they have had any reason to worry about their jobs. The long-range implications for morale are obvious.

The program was announced to supervisors by individual letters typed on plant stationery and signed by plant managers. While the bulk of the message was identical in letters dispatched from each plant, references to various seasonal problems—which differ in accordance with the operations of the individual plant—were written to order. For example, a letter from the Ottawa plant, which manufactures glass for automobiles, makes specific reference to the seasonal fluctuations in the automobile industry; a letter from the Shreveport plant, which turns out building glass, is likewise made applicable to that particular industry.

Because it tells how the security plan works, and tells it very well, a letter from the Ottawa plant, which is typical of those sent out to the supervisory staffs, is reproduced here in full:

DEAR MR. DOE:

You are a member of the Libbey-Owens-Ford management group. Your continued cooperation in helping me manage and run the Ottawa factory is essential. You can count on my support, and I am sure I can rely on your continued help as a part of our Ottawa factory management organization.

At a recent meeting of factory managers in Toledo, the security of all the people in management was considered. I am glad to explain the policy which was established.

Everyone in our management group will continue to be selected, retained (dismissed if circumstances warrant), or advanced on the basis of ability, cooperation with others in the management group, and trustworthiness in fulfillment of responsibilities in planning and carrying out production, and supervising and leading the people whom you direct.

While our factory operations are now running close to capacity, there will come times when circumstances require temporary reductions in operations, accompanied by the shutting down of equipment and layoffs of workers. During periods when it is necessary to reduce operations, resulting, for instance, from necessary repairs to the tank or lehr, or the grinding and polishing lines, or our safety glass plant production facilities—or because of seasonal fluctuations largely dependent upon the automobile industry—we will not expect you to return to the ranks but will try to find suitable employment acceptable to you. If your services are not needed during such limited periods of reduced operations, your base salary in any event will be paid in full.

Though we look forward to a period of great demand for the products manufactured in our factory, and a continued high rate of operations, a time may come when conditions will arise which are beyond our control—another war; another 1932 depression; a radical change of processes or products, such as the possible substitution of transparent plastic for glass, or of heat-treated glass for laminated glass, or of laminated sheet for laminated plate glass; other changes in conditions which none of us can foresee.

Occurrences of this kind might cause drastic and prolonged reductions in operations, might create a serious problem to the management group. In such an event, you will be given the same consideration and security both as to your salary and job as the top management in this plant receives.

If a reduction in operations is really severe, we will talk over your problems and those of this factory with you. If we can work out no better solution, you will be given a leave of absence, with a right to accept other employment, and you will be paid one month's salary for each year of your employment as a member of the LOF management group, up to a maximum of one year of full pay at your base salary existing at that time.

We all hope that none of these conditions will arise, but if they do, you should now feel secure by understanding the policy of the company toward its management group, which I have tried to explain in this letter.

Very truly yours,
Factory Manager

Libbey-Owens-Ford believes in building up supervisors' security psychologically as well as economically by encouraging their participation in management affairs through a "consultative management" program. This is simply a matter of getting supervisors' ideas and suggestions in advance of making final decisions. For example, the company recently prepared a new employees' handbook, which had been approved by all members of top management. The manual did not go to press, however, until every page had been put on film and shown to supervisors for their suggestions and criticism.

Questionnaires are frequently distributed among supervisors to solicit their opinions on various matters pertaining to worker-management relations. Results of one such

poll, conducted after the job security program had been put into effect, clearly bore out management's earlier opinion that supervisors, like rank-and-file employees, are primarily concerned with economic security.

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The Simple Approach

In their efforts to reduce turnover and absenteeism, some companies have resorted to costly and elaborate schemes which entirely overlook the possibility of simple approaches to these problems.

Croname, Inc., Chicago, is one company which favors the simple approach. Believing that workers are in an excellent position to know what kind of jobs the company has and what kind of workers it needs to fill them, and that workers usually recommend only those job candidates who would reflect favorably upon themselves, Croname provides an incentive for employees to help out with recruitment. Any worker who introduces a new employee is awarded a ten-dollar bill upon the new worker's completion of two months on the job.

In combatting absenteeism, the company has made it a point either to telephone or send a telegram to any worker who fails to appear or notify the company after the first day. Chronic absentees are called in to the personnel department to talk it over, and if their attendance record continues checkered, they are dismissed.

Having been exposed to a welter of complicated solutions to simple problems, some of which almost border on the metaphysical, management cannot be blamed for occasionally neglecting the good old-fashioned pleasure-pain approach: If you're good, you're rewarded; if you're bad, you get it. Simple as all that.

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Efficacy of Ultraviolet Rays and Glycols as Cold Preventives Held Uncertain

During recent months some companies have shown interest in the possibilities of using glycols and ultraviolet radiation in their factories for the prevention of airborne infections—particularly upper-respiratory diseases, such as colds. In response to numerous inquiries regarding the advisability of using one or both of these methods for this purpose, committees of the National Research Council and the American Public Health Association recently conducted separate studies on the subject.

The results of the studies have now been announced by Dr. R. E. Dyer, Director of the National Institute of Health, U. S. Public Health Service. "Both . . . committees feel that the use of either glycol vapors or ultraviolet radiation is still purely in the experimental stage," he said, "and that the data collected so far do not warrant the installation of such equipment in public buildings and industry in the hope of cutting down upper-respiratory infection. The U. S. Public Health Service, through its research organization, the National Institute of Health, has conducted rather extensive studies on both glycol vapors and ultraviolet radiation, and fully concurs in the reports and recommendations made by the committees. . . ."

Dr. Dyer also emphasized that direct unshielded ultraviolet radiation of sufficient intensity to kill microorganisms in the air is also harmful to the eyes and exposed skin of humans. "These observations," he concluded, "are not intended to indicate that the future will or will not disclose new public health values in the application of either glycols or ultraviolet radiation. Much experimentation is needed, however, before a decision can be made as to whether such application may or may not be warranted."

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• SOME COMPANIES have found that a good way to clarify procedures, responsibilities, and authority under a union agreement is to compile an interpretative manual for supervisors immediately after the contract is negotiated. In a recent address sponsored by the University of Michigan's Bureau of Industrial Relations, Guy Arthur described an unusual administrative manual developed by the supervisory organization of a southern mill. Regular use of the manual—plus the fact that they themselves had prepared it—made the supervisors more management-minded, increased their prestige and morale, and greatly reduced post-negotiating headaches.

THE CHALLENGE FOR PERSONNEL ADMINISTRATION

By PAUL PIGORS
Associate Professor of Industrial Relations
Massachusetts Institute of Technology

The ideal personnel director is one who can win wholehearted support from top management and line officials for his point of view, and who can elicit a high degree of voluntary cooperation from the rank and file. He achieves his effectiveness by persuasion rather than dictation, and he knows how to temper his ideals with realism. The constant challenges which his job presents and the means by which they can be successfully met are discussed in this article by Mr. Pigors, which presents the author's credo of personnel administration. Mr. Pigors is co-author of a forthcoming book entitled *Personnel Administration: A Point of View and an Approach.*

ENDURING organizational success can never be achieved merely by technical efficiency and order-giving. Authoritarianism can successfully pose only minimum requirements. Thus the challenge for all representatives of management is to win from workers their voluntary cooperation not only in meeting production demands, but in all other phases of their functioning. This leadership aspect of management, which seeks the plus values of cooperation, is the essence of personnel work.

To those of us who make personnel administration our profession, the challenge of securing cooperation is a double one. First we must win for our point of view the support of operating officials up and down the line, because it is upon them that the organization must ultimately rely for good personnel relations. If we are to succeed in the first objective, our recommendations must be sound in theory. They must also be so persuasively presented that line officials will want to exercise their authority through methods that accord with the personnel point of view. Second, when our ideas are applied by line management, they must prove effective in winning the cooperation of workers. This means that our recommendations should be not only idealistic, but also realistic because they are well adapted to the specific situations in which they are to be used.

WINNING TOP MANAGEMENT SUPPORT

The task of enlisting for personnel work the respect and support of operating management is not always easy. It is especially difficult if the chief executive is not genuinely enthusiastic about the principles that underlie personnel administration. And it is no easier if he thinks that he can reap the benefits of good personnel work without paying for them in advance in time and effort. Until he comes to believe so strongly in the value of personnel work that he is willing to make part payment for it with his own time and thought, the efficacy of any personnel administrator who works for him is necessarily limited. But this limitation need not be accepted as final. It merely means that the personnel administrator's first job is to convince his chief that personnel work is an integral function of line management. As such, the responsibility for it cannot be entirely delegated by the chief executive to anyone. The president remains responsible, for and through his personnel administrator, to all his other employees. And the personnel

point of view must be his, as well as ours, if it is to win the respect it needs in order to be fully serviceable.

LINE AND STAFF RELATIONSHIPS

When the chief executive has come to realize that personnel administration is a job as important as any in the organization, the personnel man's task in winning cooperation from line management is usually more than half accomplished. With the full support of top management, it should not be difficult for an able personnel administrator to convince line officials that his ideas can be useful to them. In trying to do this, each of us must be prepared to take his chance when it comes. We must be interested in the problems that are recognized by operating officials, and not merely try to impose upon them solutions for problems of whose existence they are still unaware. And above all we must be able to think along policy lines about major issues, and not allow ourselves to become entirely submerged in details, however urgent.

But we must never forget the limitation of our role as staff officials. We cannot give orders to the line. We should rely, instead, on the power of ideas. We can make sure, however, that our ideas are known and are such as to carry weight. Since our principal aim is to build cooperation, we must see to it that we practice what we preach. In some organizations tension and frustration, instead of a high degree of cooperation, exist between line and staff. It is an important part of our job to eliminate such barriers to efficiency. The acid test of our success in personnel work is the extent to which our point of view is actualized in the behavior of line officials. If we do our job well, every representative of operating management will be doing it with and for us. This, of course, will make our own contribution less conspicuous. But we need not worry unduly about that. It has been said that one cannot both do things and get the credit for them. It is up to us to do things. We can well afford to let others get the credit. This will make them all the more enthusiastic about our ideas.

OUR PART IN LABOR RELATIONS

If these ideas really are of practical value, we can be a constructive influence in labor relations. For one thing, we should be able to set the tone of management-union negotiations. We must try to convince top management that unions are useful when regarded as a check on management's thinking about personnel. Employers who are reasonable and fair need not fear the challenge of any agency that is also reasonable and fair. And management should be ready to take the initiative in developing good relations with the union.

We should help management to be realistic about unions. They are here to stay and they should be accepted, not only in the kitchen as workers, but also in the parlor as equals. Management fights a losing battle when it concentrates on safeguarding its prerogatives. These can never be guaranteed by a clause in the union contract. They can be kept only when they are earned. Progress in personnel relations lies in developing mutual interest between management and workers, and in working toward a common cause. Let's help top management to take and hold this line in union negotiations,

remembering that contracts are worse than useless unless they are supported by daily action at the work level.

Long-term results in labor relations depend on a soil-building program. This work has to be done by the first-line supervisors. We can help them to build sound management-union relations from the ground up, by their daily conduct toward workers and union officials. The supervisor's basic rule should be to respect the workers' rights under the law (the shop law of the union agreement) and to see that the workers respect management's rights under the same law.

UNDERSTANDING IN HUMAN RELATIONS

It is part of our job to help the first-line supervisor learn how to get and how to weigh the relevant facts, both technical and human, upon which his judgments must be based. We can help him to see that human facts are subtle, elusive, and variable. In human relations we rarely meet the so-called "plain" fact. Certain events are bound to affect people in different ways, and will often seem quite different even to the same person at different times. Thus every point of view—even ours—is only a *point* of view on the whole arc of human understanding. We need to get other angles and more evidence, to be flexible, and to look for meanings beneath "unreasonable" words. We should try to understand feelings by getting each participant's angle on the situation, then get outside and look at the whole thing objectively.

POLICY THINKING

In building understanding for ourselves and others, we have several different kinds of responsibility. Top management may need reminding that policies are for people, and that people respond better when treated not as we think they *ought* to feel and act, but rather as they *do* feel and act. Policies are dynamite unless realistically formulated, and unless they allow room for discretion in border-line cases.

Policies also need to be clearly explained, wisely interpreted, and consistently applied. Supervisors need help in showing workers why policy requirements are more important than purely personal pleas for cooperation. There are exceptions to all rules. But policies should be broader than rules. If many special cases cannot be handled within policy patterns, there is something wrong with the policies. We must find out what it is and try to correct it.

We should be concerned with long-term principles more than with short-term results. Principles are related to people in terms of personnel policies. We should each make sure that all concerned understand the principles that apply to the specific company situation at the time, that we all know what a genuine policy is and how existing policies are actually working out. Although he has no final word on policy making, the personnel administrator should be top management's key advisor on all policies for personnel. Therefore, we must be sure that our policy thinking measures up to the need.

GETTING DOWN TO CASES

When we hear reports of "hopeless" misunderstandings or "incompatible" opinions, we should be willing to get down to cases and see whether we

can reconcile the differences. We must try to get inside the situation and piece together the whole story. We must check and weigh the facts, determine the issue, and seek a solution that integrates basic needs. But in planning for the future we should avoid like the plague the temptation to go it alone. We must never emerge on the scene with the results of solo thinking, crying: "Boys, here it is!" The boys will be more likely to agree with our answer if they have helped to work it out.

INTERVIEWING

When trying to create understanding, we need not suppose that we must either always think alone or do all the talking. To create understanding by and between people, interviewing is required. While doing this, we should remind ourselves that for each person what counts most is not what *we* say, but what *he* thinks and feels. We should learn to prepare for an interview so that both participants can make the most of it. We must learn how to listen, and help the other person to speak his mind. When he is talking, we may both see new light on what he is asking of the situation, and on what the situation is asking of him. We should use imagination to draw out meaning and use a pencil to pin it down. When the talk is over, we can amplify our notes and evaluate the interview both as an experiment in human relations and as an opportunity to improve our understanding. What happened? Was new insight achieved? How can we do better next time?

THE LEVEL OF TEAMWORK AND MORALE

Our ability to understand should be matched by our readiness to examine the facts. We must never indulge in wishful thinking. How stable are the individuals and groups in the organization? We are certainly not just "one big happy family." What are we? Are we merely an aggregation of people held loosely and temporarily together by economic interest? Or do we possess any sense of united purpose and common membership? Is there more of this feeling in some sections than in others? Have we any real work teams? If so, where? How were they built? How are they maintained? We should think about this, giving credit where credit is due, and help where help is needed.

LEARNING FROM COMPLAINTS

Often we can gain insight by studying employee dissatisfactions and the methods by which they are being handled. What types of complaints are we getting? Where are they coming from? How does the complaint procedure work? Is it aimed to suppress squawks, to appease troublemakers, or to disclose dissatisfactions? Part of our job is to see that there is a definite and simple procedure, known to all, and that it can function fast. We should try to convince line management that a complaint made officially represents an opportunity and not just another headache.

We can help line management to learn the trick of listening to what speaks *in* workers (for instance, resentment, jealousy, hurt pride, insecurity or fear) when they present complaints, as well as to what they speak *about*. And we should study complaints ourselves. Sometimes they are eye-openers.

In that case let's open our eyes and look hard, even if this means seeing our department in an unattractive light.

BUILDING AND MAINTAINING WORK TEAMS

The whole employment process is of major concern to us. Is it such that we can be satisfied with every phase of it? Are we, in this process, doing everything that can be done to build and maintain stable work teams?

Recruitment should be both dignified and effective in attracting a suitable number of qualified employees. Placement should be a preliminary decision for routine workers, and part of a continuing experiment for promotional candidates. Our department should set an example for other staff experts by the way in which it works with supervisors to make a success of these initial hiring procedures. Does it?

A key man in the formation of effective work teams is the first-line supervisor. We must try to make this no empty statement in our organization but a fact that can be thought about with pride. We should not be afraid to prove that what the first-line supervisor does, day in and day out, counts for more in personnel relations than what the president says at the annual picnic.

We can help top management to select foremen for their skill in human relations as well as for their technical efficiency. We can train them in the personnel point of view, and learn about their problems on the job. If we and they pursue our education together, personnel relations are bound to improve.

HELPING WORKERS MAKE GOOD

There is no more vital person in the employment relationship, of course, than the worker himself. We should help him to recognize that his ability to do the job will largely determine his status. Seniority need not be accepted by management as the only standard for decisions on promotion, transfer, downgrading, and layoff. But management need not worry about giving seniority due weight when the earlier steps of recruitment, selection, induction, and training have been followed with care.

Sound procedures of induction and training are essential in helping workers to feel, to think, and to do as they should. As part of the job of getting out production, these activities are the responsibility of line management. But a personnel administrator can help in developing induction and training programs that fit the company situtation. He may also assist in training the instructors who actually do the teaching. Unless this teaching is effective, both technical efficiency and success in personnel relations are inevitably limited.

Employee rating, of which each worker is informed in regular follow-up interviews, is an essential mechanism for mutual understanding and for the maximum development of employees. When the worker knows where he stands with management, he can adjust his expectations and behavior accordingly. Employee rating also helps management to make sound decisions on promotion. When careful ratings replace snap judgments on employee performance, management, workers, and union leaders will find solid ground for agreement.

A personnel administrator should also be allowed to help top management with its policies and procedures for transfer, downgrading, and layoff. Established avenues of transfer should be soundly built into the organizational structure and generally known. Lack of clarity in this area tempts workers to suppose that management's professed aims to make the most of ability and to stabilize employment are "just a lot of hooey."

Decision on downgrading and layoff are difficult, both for management to make wisely and for unions to accept. Only on the basis of clearcut policies, consistently and constructively administered, can both sides be assured that all are treated fairly.

Procedures of discipline and discharge also test management's success in applying the personnel point of view. The personnel administrator has not succeeded in his job if line management fails to understand that daily discipline should be maintained within each work team, and chiefly by self-discipline on the part of every employee. Such inner discipline should be encouraged by a constructive discipline policy and supplemented by a few simple rules that are promptly and consistently enforced.

When a worker has to be discharged, every management representative who has regularly dealt with him should look at the record and examine his own memory in search of clues about what went wrong. Was he ever the right man in the right job? Was his follow-up adequate? A skillfully conducted exit interview may throw light on these points. Or management may never learn why it failed in getting this man to cooperate. Was it perhaps that he did not know what was expected of him in time to adjust to the requirements? If so, we must try to use this failure to some purpose by showing management that workers need to have notice and explanation of changes in work routines, in personnel, and in rates of pay.

Other procedures, closely-related to the employment process, are of equal interest to us as personnel administrators.

EARNING A LIVING AND MAKING A LIFE

For instance, it is up to us to give top management the personnel point of view about earning a living. Wages and salaries are not all that employees work for, though money does matter. They are working for both prestige as well as groceries. Levels of wage rates should be related to those paid by other comparable firms in the community or in the industry. The cost of living, the company's financial status, and government wage orders must also be considered. It may be difficult to make the necessary job evaluations and to set up a salary and wage structure that meets all requirements and clearly represents existing job relationships. But the principles are easy to explain. We must see that every interested worker understands them, as well as the facts of his own case. If union officials want to participate in the early stages of job evaluation, so much the better. If not, they should at least be given an opportunity to understand the aims and methods.

When talking money to the chief executive, can we show him that we are cost-minded? As skillful exponents of human values, we may even be able to persuade him, if necessary, that penny pinching is an extravagance in personnel relations.

If the organization has an incentive system, how well does it work? Do employees understand the why and how of output standards? Does the system step up production or keep it down? If it results in gains to the company, are these gains fairly shared with the workers? Does the incentive system divide or unite work groups? Does it convince workers that management values effort, or do they think it is just a device to cut rates? Are time-study men regarded by the rank and file as villians, as necessary evils, or as technicians with an understanding of human problems? The personnel administrator should know the answers to these questions and should bend his efforts to see that the answers are right.

In our organization is there a serious conflict for most of the personnel between making a living and making a life? If so, we must do what we can to resolve it. For example, we should try to evaluate for operating management the human aspects of hours and shifts, but without ourselves underestimating technical requirements. It is not hard to plan schedules solely with a view to meeting production demands. Nor is it difficult to adjust one worker's schedule to fit his personal situation. But such adjustments, if made for many people, produce chaotic group schedules. And if made for some people and not others, they may appear to be a form of discrimination. Can we help top management better to integrate all relevant needs?

MUTUAL RESPONSIBILITY

It is sometimes difficult for operating management to remember that any serious problem in any area of the worker's life inevitably reduces his total efficiency. It is our job to remind the chief executive that workers' problems are, in part, his problems. And it follows that management should offer appropriate assistance when employees have difficulties that they cannot meet alone. This does not mean doing things *for* people, so much as thinking and acting *with* them. It means helping them to help themselves, and to make intelligent use of plant and community facilities. It also means being realistic and not romantic—not going in for spasmodic do-goodism or utopian experiments, but rather for long-run mutual responsibility in a working relationship.

By an employee service program, management can show that its professed belief in responsibility is neither hot air nor just a one-sided demand on workers. Services depend for success on mutual responsibility. Management should participate with employees in planning an all-round program to meet human needs. Workers should participate with management in administering and paying for the program.

HEALTH AND SAFETY

Mutual responsibility between line management and workers is nowhere more essential than in regard to health and safety. As personnel administrators we, too, have a great responsibility here, and in studying the frequency rate of accidents in the company and the current health data, we should be willing to shoulder our share of the burden. What more could we have done to help prevent accidents and sickness?

For instance, what do the safety records and the results of the accident prevention and health programs show about the success of our department? If top management is not sufficiently personnel-minded to have developed the necessary policies, we may be partly to blame. If operating executives are not so interested in their subordinates as to be constantly mindful of their health and safety, we have not been successful exponents of the personnel point of view. If the safety director and the company doctor do not come to us for advice, we are missing a valuable opportunity for cooperation. If union officials are not invited to take part in safety discussions and in planning for health, our ideas have not proved fully effective in labor relations. And if workers must often be punished for wilful infractions of rules relating to safety and sanitation, our department has fallen down on the job of selecting the right kind of person to join the company community.

EMPLOYEE PARTICIPATION IN PRODUCTION PROBLEMS

But perhaps our employees participate in these services and not in solving production problems. If so, why? Is it primarily because line management does not want their participation in this area? In that case, what are we doing to correct such a short-sighted and unconstructive attitude? Workers always have ideas about their jobs. The question is whether these ideas are being used to "beat the system," or to step up production. People normally like to make suggestions in order to improve conditions and to gain prestige. If ideas are not coming in through the official suggestion system, it is probably the fault either of this system or of the personnel program as a whole. If workers and union officials do not take an interest in company problems, it is perhaps because they have been given the notion that these difficulties are no concern of theirs. This attitude does not spring from nowhere. But such a sign of cleavage between workers and management is not hopeless. It is a challenge. What can we do to meet it?

THE WILL TO UNDERSTAND AND BELIEVE

We are not, of course, responsible for building a Utopia. But all personnel men are obligated to go on trying, and to interest others in this absorbing occupation. Thoreau said: "Gnaw at your own bone: bury it, unearth it, and gnaw it still." Our "bone" should be the conviction that people can understand each other if they will, and can work together more effectively when they do. We shall never get all the marrow out of this bone, because we shall never reach the point where we know all the answers.

But let us not be discouraged. We have to keep at it, and let neither our own failures nor the mistakes of anyone else convince us that the personnel administrator's job is not worth doing. It is all the more worth doing because it can never entirely succeed. We must keep on learning, and believing that there is a fair solution to every human difference. We can always hope to find it, but in any event we should keep on believing. We must believe in people, in principles, and in our profession. We must also believe in ourselves. Unless we do, how can we ask others to rely on us?

AN ECONOMIST LOOKS AT JOB EVALUATION

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Despite the fallacies and weaknesses encountered in job and merit rating systems, job evaluation, in this economist's opinion, is definitely worth while. In his discussion of the relation of economic factors to wage and salary administration, Mr. Sufrin considers some of the uneconomic practices which reduce the effectiveness of job evaluation programs—e.g., unrealistic analyses of labor markets, unwarranted emphasis on symmetry in classification, arbitrary use of subjective rating factors, unnecessary completeness—and indicates how many of these pitfalls can be avoided.

THE PURPOSE of this article is to provide a comment on some of the economic implications and considerations of job evaluation. The comment will be more meaningful and more pointed if some space is devoted to a brief explanation of the theory of wage determination and the function of job evaluation in relation to this theory.

Wages are, in the first instance, determined by the supply of and the demand for labor. The supply of labor is determined by the number of persons seeking jobs, the hours and effort expended, and the wage demands of those in the labor market. The demand for labor is determined by what is considered the productivity of labor—namely, the value of an employee to his real or potential employer.

In considering the demand for particular kinds of labor, two possible considerations arise. First, if the employer, or potential employer, is competing for labor with other employers in the market, his individual demand price—i.e., the wage he is willing to pay—is virtually determined for him. It will simply be the going rate in the market. The quantity of labor he will hire will be the number of people of a given skill that business prospects make it worth while to hire at the prevailing wage. The second consideration arises if the employer, or potential employer, is so large and important an element in the labor market that the wage he determines to pay will, in effect, set the wage in the market. This situation is more complicated than the first case, but generally the same principles will apply. The firm will hire the number of workers of a given skill it needs for its most profitable (or least unprofitable) operations at a wage which will just induce that number of people to seek employment.[1]

Now let us look at the labor supply side of the market. Most individuals are willing to work at wage rates predetermined in the market. However, for the entire labor market, higher wages might attract more people in the market. Since industry requires people of specific skills, and higher wages, in the short run, will not change the skills of the labor force, the supply of specific, skilled classes of labor often tends to be relatively rigid. Increasing wages will often, then, result merely in job transfers and will not affect the total labor supply.

[1] Technically, the situation in which a buyer of labor can affect the wage rates in the market represents some degree of imperfect competition in the demand for labor. This situation, while not uncommon, is probably less common than the situation in which industry has some control over the price and volume of size of the final product it is manufacturing. In both competitive and imperfectly competitive situations, the demand for labor of the individual firm is determined by business prospects; but for the entire economy, or an entire industry, business prospects are in great part determined by the volume of employment.

It is fairly obvious, however, that higher wages will, in the short run, tend to increase the number of unskilled people seeking jobs.

The counterpart of the imperfect competition in the demand for labor is the imperfect competition in the labor supply caused by the existence of wage and hour laws which either arbitrarily predetermine wage costs or restrict the labor supply. Another contributory element here is the existence of trade unions, which, through their mass bargaining power, exercise considerable control over the effective labor supply. In the short run, it should be noted, the wage rigidity introduced by trade unions is probably of greater economic importance than limitations on the entry of individuals into the labor market, though the long period effect of the latter might be both great and serious.

The individual business firm has two decisions to make relative to the hiring of labor: (1) Its hiring offer must be made to conform to the wages, hours, and conditions obtaining in the market. This cannot be done in a complicated labor market without careful analysis of market conditions, especially in imperfectly competitive markets. (2) It must hire labor in quantities and at wages that will permit the organization to operate profitably (or with a minimum loss).

When a firm hires labor, the gap between its internal considerations and the market considerations is not always successfully bridged. For instance, a company which is earning a profit may continue a wage structure higher than that of the market, with a consequently lower output, employment, and profit than purely economic considerations need imply. As another example, tradition and inertia may set conditions in a firm or industry that are inconsistent with changing conditions in the labor market. Some bridge, or line of communication, therefore, is necessary between firm and market to enable the firm better to adjust itself to market conditions. As industry has grown larger and more complicated and as the supply of and demand for labor have tended to become less than perfectly competitive in the narrow sense of the word as used here, industry has attempted to develop this bridge through the medium of job evaluation.

FUNCTION OF JOB EVALUATION

In essence, job evaluation performs two major functions. First, it seeks to ascertain the wage structure of the market, i.e., the wages, income, and conditions of employment for persons of specific skills.[2] Second, it seeks to develop in the firm a job hierarchy or classification, a structure of wages and conditions of employment which, while it meets the needs of the firm, adequately reflects the conditions of the market. Thus, for any job evaluation system to be successful, it must be based on (1) an accurate, realistic labor market analysis, and (2) a reasonable, accurate job requirement analysis for the firm.

To put it another way, job evaluation must provide a detailed blueprint of the hole (the job) in which the peg (the employee) is to be fitted. Though the peg is, in many instances, a rough casting which will be further ground,

[2] In economic theory, knowledge about a competitive market is assumed to be available to all concerned. Job evaluation is, in part, a formal way to make the assumption of economic theory a reality in the imperfect and complex markets of the modern industrial system. This is the market function of job evaluation.

polished, and possibly even shaped by the company's training program, its dimensions are determined in the market. Ideally, if the peg just fits the hole—or the employee exactly meets the requirements of the job—his wage will be exactly the wage for that class of employees in the market. If, on the other hand, the peg does not accurately fit the hole but some further work must be done either to the peg or to the hole, the wage paid the employee will not have an exact counterpart in the market but rather will represent the general tendencies of wages in the market.

IS JOB EVALUATION WORTH WHILE?

The first question often asked of consulting economists with respect to job evaluation systems is "Are they worth while?" The answer must be "Yes, provided the job evaluation program is reasonable and accurate." The reason for this answer is that if a formal job evaluation system does not exist, management is literally forced to construct one as it goes along. Improvisation is not likely to be so good as a planned program. If few unskilled workers are desired, obviously an employer simply ascertains the wage rate for unskilled labor in the market and pays that rate. But as soon as the question of grades of labor and of paying a more efficient or more useful man in some proportion to his usefulness or productivity arises, many judgments regarding usefulness and productivity and competitive rates of wages immediately must be made. The history of business sciences is the history of analyzing and classifying business judgments so that each decision is not made anew, but rather reliance is placed on successful experience. Rules of thumb are often necessary and frequently very good, but they are never so valuable as classified knowledge based on the failure and success of previous decisions. Job evaluation attempts to classify past experience into an orderly procedure.

Where industry is hiring labor in a highly competitive (buyers') market, and where the skill requirements of labor in the industry are very similar to the skills demanded by the other competitive hirers of labor, the competitive forces in the market play a large part in the formulation of the job evaluation system. In this case, the business man has little choice in determining his wage structure and employment policy. But, where the firm's demand for labor is large in comparison to the total demand for labor, or where the supply of labor is offered for hire under the monopolistic circumstances created by the presence of a strong trade union, or where the competitive conditions of the labor market are generally imperfect, the business man cannot rely on the normal competitive forces in the labor market in determining his hiring program.

Such cases, and they are usual in both large and small labor markets, virtually require market analysis and job analysis. In brief, they require some type of job evaluation if the firm is to operate on a sounder basis than merely on hunches or by guesswork.

LABOR PRODUCTIVITY VERSUS THE MARKET RATE OF WAGES

According to the general theoretical outline we have followed so far, the market rate of wages will exactly equal the productivity of labor if the firm's

requirements for any particular class of labor are exactly the same as the capacity or ability of that class of labor in the market. In terms of our analogy, there is then an exact fit between the hole (the job) and the peg (the employee) as hired in the market. In point of fact, such complete fit will not ordinarily obtain if the techniques of production of the firm are to some degree, at least, peculiar to it. That is to say, each business is likely to have its own methods, so that some training or adjustment is necessary before an employee fits into the plant's organization and way of doing things. In any operation other than the most simple, the employer feels the necessity of his employees' sharing common plant experiences as well as a sense of membership in a group working as a team. These considerations are of importance to the firm, but of negligible interest in the market.

If the differences between the market measures of productivity for a given labor class—i.e., the market wage—and the requirements of the firm are slight, there need be no discrepancy between the wages as set in the market and the productivity or usefulness measure as determined by job evaluation. Indeed, if the differences are slight, there is little economic justification for the two rates to be different. However, if the job requirements for a given labor class within the plant differ more than a little from the average job requirements as noted in the market, plant wages might tend to vary from the market rate.

In some industries, this variation is very great. For example, the writer has had occasion to examine wages under bonus or incentive systems. In many instances, it was quite apparent that the productivity of labor in the market tended to be much lower than the productivity within the plant—differences of 10 to 50 per cent not being rare. If the plant with an effective incentive system were dealing in a thoroughly competitive market, it might have been to its advantage merely to pay market rates in the hiring of labor and enjoy the difference between the market rate and the incentive yield as a profit. For many reasons, however, plants do not consider this worth while, preferring rather to pay a wage rate which has some relation to the productivity yield of labor in the plant.

The considerations that induce plants to pay labor above the market rate as a normal policy are not necessarily uneconomic or unreasonable. Desire to maintain harmonious labor relations, reduce labor turnover, follow a high wage policy rather than be forced into the higher tax brackets are among those considerations. In cases where the high wage firm draws off the "cream" of the market, the wage policy is based on a belief that the skill classification of the market is inaccurate, in that labor of a given skill class within the market is not homogeneous. The high wage policy is then a device to secure extraordinary labor for the extraordinary wage. In this case, the employing firm has a better knowledge of the labor market than the other buyers of labor services, or indeed than the average seller of labor service. On the whole, however, the justification for the voluntary paying of rates above the market rate must lie in the realm of business judgment which, strictly speaking, includes the consideration of factors beyond those of merely technical, general economic

analysis.[3] In cases where the high wage policy is imposed by the imperfect competition on the labor supply side, e.g., by a trade union, the policy is a reflection of market rates of wages, albeit the market rate is not a perfectly competitive rate.

THE FALLACY OF SIMPLICITY

The next several sections will be devoted to some weaknesses of job evaluation systems which tend to reduce their effectiveness.

The first weakness, or fallacy, may be called "the fallacy of simplicity." In some market surveys, which are an integral part of job evaluation, the writer has noticed a tendency to perform the analysis of the complex market structure in a manner so simple as to become unrealistic. For example, in determining the so-called wage line or average relationship of wages in the market, the market analyst sometimes fits a straight line trend (regression) to wage data which do not follow such a simple relationship. A couple of years ago, the writer asked a well-known labor market analyst why this was done and received two answers, neither of which can be considered satisfactory. The first justification was that the system employed by this particular market analyst was based on a straight-line market wage relationship. That is to say, in developing the system, its authors fitted the straight line to the wage data and that was that. The second answer was equally thin. It was that the clerks who fitted the trend to wage data were not trained statisticians and consequently could not use any statistical judgment. The easiest trend to fit was a straight line fitted by least squares, so that was used.

There is no logical basis for arbitrarily fitting a straight-line trend to wage data. If the data do not approximate a straight line but the straight line is used, there will be a tendency for the plant's wage structure to provide higher wages for some classes of labor than truly reflect the market situation.[4] In such cases, the job evaluation program will suffer in that the market analysis, and decisions based on it, will not reflect the true market situation. If the fitted trend is below the market rates, the plant, of course, will have to pay the market rate if it is to obtain labor.

Another example of the fallacy of simplicity is the basing of market analysis on insufficient data, and the making of arbitrary interpolation and extrapolations. An economic, as well as statistical, analysis of the market is essential if the market analysis is to be realistic.

The solution to this type of fallacy is to make an accurate market analysis. The fallacy is not inherent in job evaluation. It is, of course, difficult to describe an accurate market analysis in the abstract. Certain general principles can be laid down. The sample of wage data should be representative.

[3] Economic theory, as any theory, deals with general relationships. It is only when business habits or classes of business decisions become general that they find their way into theory. Yet, each business man makes many decisions which are based upon his own analysis and which suit his own needs. For example, judgments or anticipations regarding the probable behavior of competitors or of prices, guesses as to the specific demands of a union, or what the trade union "will take," etc., are not as yet theoretically treated with great success. As more is learned of the economic and psychological processes of business, these classes of business activity will presumably be incorporated into the systematic body of doctrine.

[4] If data properly requiring a curvilinear trend are fitted by a straight line, some segment of the straight line will lie above the curvilinear fit.

A big sample is better than a small one, but the important element is the representativeness of the sample. The statistical techniques used to analyze the data should be those which properly apply to the particular type of data involved; that is, relatively complex statistical analyses might be required. Above all, in choosing the sample, care should be exercised that the sampling includes classes of firms and labor competitive with the firm for whom the market analysis is being done.

THE FALLACY OF SYMMETRY

The next type of fallacy which has come to the attention of the writer may be called the fallacy of symmetry. It is the counterpart of the fallacy of simplicity. Many job evaluation systems provide for an equal number of wage steps within each wage class, while some systems also provide for certain arbitrary distribution of persons within each wage classification. There is no logical basis for assuming that the number of employees within a wage class follows any particular type of distribution. For example, a classification of common labor might very well have a great bunching of employees near the top of the common labor class. This would be especially true if the demand for common labor in the market were relatively strong. Failure to recognize this might lead to abnormally high rates of turnover among workers of this class. Another example of the fallacy of symmetry is the insistence that the wage steps in each job category be of equal number, or that the distribution of workers in each job category be of a similar nature. Reliance on such symmetry or artificial orderliness is often without real justification.

The only virtue of a predetermined classification of employees in any given job classification is that "it looks good on a chart." The purpose of job evaluation is, however, not a neat diagram but a workable procedure. Cyclical and secular changes in business activity might very easily cause the distribution of labor in the several job classifications to change rather markedly and might tend to change the wage structure. This change would be brought about in two ways: (1) The entire level of wages might be raised or lowered; and (2) the wage relationships of the various labor classifications might be changed.

EVALUATION OF THE JOB

Several techniques have been developed to rate or evaluate the job and the employee on the job. Ideally such rating or evaluation should include all the factors which, when operating in combination, determine the productivity of labor, i.e., labor's value to the firm. Many systems, however, provide for factors and considerations which have little, if any, effect on productivity. For example, such items as cooperativeness, leadership, appearance, and personality are often used as elements in determining employee ratings, when in truth these elements have little or no bearing on the value of the employee to the firm. Sometimes use of such factors actually defeats the purpose of job evaluation. For example, an industry employing relatively large numbers of people should normally expect a certain rate of turnover. This would be

due to the fact that some employees simply cannot meet the requirements of the job. If the responsible department head is more anxious to eliminate turnover than to undergo the troubles attendant upon recruitment, hiring, and training, he might very well score his employees highly for these arbitrary (uneconomic) factors. Values given these factors also are used to reward particular employees whom the responsible official of the company wishes to reward. Labor unions vigorously object to the use of this method to better the position of non-union people or "loyal employees" as against "agitators or trouble-makers."

Such techniques tend to be uneconomic and to breed trouble. One company with which the writer has had contact had a system of automatic wage increases up to the median rate of each job class; all increases above the median were on a "merit basis." It turned out that by "merit basis" the company meant that certain employees were to receive benefits which were to be denied those believed to be somewhat critical of the firm. This program clearly points out the weakness of the arbitrary use of these subjective factors in rating. The organization was suffering from a disastrous strike, partly caused by this issue.

This particular type of arbitrary, subjective merit rating is probably one of the greatest breeders of labor discontent in job evaluation. It undoubtedly is one of the major reasons why some unions are extremely hesitant about supporting job evaluation systems.

THE FALLACY OF UNNECESSARY COMPLETENESS

The next type of fallacy encountered in job rating systems is the introduction of unnecessarily complete or complex rating. This point is well made in a recent article by Dr. C. H. Lawshe,[5] who indicates that, for the small sample of firms which he analyzed, three factors used in the process of job evaluation gave substantially the same result as eight or 10 factors. If this is generally true, it would seem that firms using job evaluation are probably spending more money in analyzing the system than they need spend. The fallacy of unnecessary completeness seems to support the position taken by the present writer concerning the uneconomic and unnecessary nature of arbitrary factors in rating.

CONCLUSION

This paper does not pretend to be an exhaustive analysis or criticism of job evaluation. It is merely an attempt to answer two questions: one, "Is job evaluation worth while?", the answer to which is "yes"; second, "Are there weaknesses in job evaluation?", the answer to which is also "yes." These weaknesses, however, are not inherent in job evaluation.

Job evaluation, to be successful, must be based upon an exhaustive and continuing examination of both the labor market and the needs and requirements of the firm. It must carefully preclude, insofar as possible, prejudices and simplicities which have no place.

[5] C. H. Lawshe, Jr., "Toward Simplified Job Evaluation," PERSONNEL, November, 1945.

The problem posed in this paper is a narrow one. It would be worth while if persons interested in the field of wages would consider the value of job evaluation in markets that have varying degrees of competition with respect to both the supply of and the demand for labor.

The Trend of Urban Wage Rates

ACCORDING to a Bureau of Labor Statistics semi-annual survey, urban wage rates showed greater advances between October, 1945, and April, 1946, than they did in any six-month period since the beginning of World War II, and at the end of August they were still registering substantial monthly increases. Despite the rise of basic rates, however, real wages still showed only moderate advances over January, 1941, levels, as a result of a 42.6 per cent increase in consumer prices between January, 1941, and August, 1946. If measured from wartime peak levels, real weekly earnings show a decline despite the basic wage rate increases that have occurred during the reconversion period, while real wage rates show a small increase.

The largest gains in rates between April, 1945, and April, 1946, were made by petroleum (18.4 per cent) and textiles (17.9 per cent); the smallest by food, shipbuilding, and the metal products industries other than basic iron and steel and shipbuilding (11.0, 10.4, and 11.1 per cent, respectively). Including postwar gains as of April, 1946, wage rates had advanced since January, 1941, by 70.5 per cent and 65.6 per cent, respectively, in the leather and leather products and apparel industries. In view of the importance of piecework in these industries, these figures may reflect increased productivity, to some extent. A similar increase in rates (63.1 per cent) has occurred in the textile industries. Rate advances in the metal products industries over the long period have been slightly under the average for all manufacturing.

Though the amount of postwar increase in manufacturing wage rates varies to some extent among individual cities or wage areas, it shows, in general, remarkable uniformity. Of the 15 major cities for which separate postwar data can be presented, only three deviate more than 3 percentage points from the average increase for all manufacturing. The largest gains were made in Portland, Oregon, and Houston, Texas. Wartime gains in both these cities had been well below the national average. The smallest postwar advance in rates had occurred in Minneapolis. This city likewise had seen relatively small wartime wage increases in manufacturing industries. Its small postwar advance in wages is due, at least in part, to reconversion problems in the metal products industries which employ a majority of the city's manufacturing workers.

Urban wage rates in the non-manufacturing industries covered by the survey advanced more evenly between April, 1945, and April, 1946, than they did in the manufacturing industries.

The increases in non-manufacturing industry wages were largely the result of wage adjustments for individual workers rather than of general, or across-the-board, wage increases such as occurred in manufacturing. Between August, 1945, and April, 1946, for example, an estimated 41 per cent of all the workers in the selected non-manufacturing industries received general wage increases, while about 79 per cent of all manufacturing workers were given general increases. Nevertheless, the over-all increase in non-manufacturing rates between April, 1945, and April, 1946, was only 2.4 percentage points less than the increase in manufacturing.

Local utilities and retail trade made the greatest advances in rates during the 1-year period of all the five non-manufacturing industry groups studied. Only the utilities group had received general, across-the-board, increases in rate scales that approximated the advance in the urban wage rate index. More than 95 per cent of the workers in this group are estimated to have benefited from general wage increases following VJ-Day, as contrasted with slightly more than half the employees in wholesale trade and approximately one-third in retail trade, the service trades, and the finance group.

LET'S GET MORE SCIENTIFIC IN RATING EMPLOYEES

By WALTER R. MAHLER*

Management's quest for an *ideal* method of rating employees is likely to prove fruitless because of the many variables and imponderables involved. It would be better to lower our sights and concentrate on finding or developing the best system to meet the specific needs of a particular organization. An experimental approach is called for, and such an approach is outlined by Mr. Mahler in this study based on investigation of a variety of rating plans. The result will be a positive program of action which will encourage more careful consideration of some of the fundamental principles often overlooked in employee rating.

EMPLOYEE rating plans have come and employee rating plans have gone. This is an oft-repeated sequence in many companies. Mention employee rating to 10 industrial relations excutives, and nine of them will shake their heads and say, "My experience with employee rating has been discouraging. I realize it is important, but . . . ." The tenth one will say, "It certainly has worked for us," or "We wouldn't know how to get along without it."

If it weren't for that one company we might be able to forget about rating employees, concede that it is too difficult, and try some other means of securing fair and accurate judgments of workers. However, if one company can develop a rating program that it swears by, then those other companies which have been swearing *at* their plans should not give up hope. It is important that industrial relations executives not abandon the use of this personnel technique. Top management is becoming more and more aware of the need for systematic determination of the relative worth of employees to their organization. This awareness stems from the gradual realization on the part of managements, once again on a competitive basis, that the development of an efficient workforce requires that each individual receive recognition and reward in proportion to his relative performance. In some cases this realization has been forced upon managements through the demands of unions for single job rates rather than rate ranges, for automatic salary progression rather than merit increases, and for promotions based on seniority rather than merit.

The results of an intensive survey of successful and unsuccessful rating programs are presented in this article in the hope that they may provide a sound foundation upon which satisfactory rating programs may be built.

The reasons for management's discouragement with rating plans are many and varied, but they are primarily symptomatic in nature. Underneath the variety of symptoms exists one uniform condition: the lack of an experimental, a developmental, a scientific approach to the entire rating problem. With very few exceptions the companies reporting discouraging results can

* Mr. Mahler is at present engaged in intensive experimental research on employee rating.

be characterized by their reliance upon trial and error rather than on basic research, and upon expediency rather than sound policy determination.

Consider the following examples of lack of systematic scientific approach:

The failure of many companies to specify the explicit purpose of their rating program,

The frequent incorporation of a ready-made plan or a borrowed plan without its being adapted to the local situation,

The concentration of effort upon relatively few aspects of the entire rating program. Consider, for example, the excessive attention frequently given the rating form,

The failure to utilize the advice and assistance of trained personnel, skilled in developing methods and in handling the complex problems encountered. We assign engineers to engineering problems, but often the "guy in the corner" is assigned to the employee rating problem.

The lack of realization that subjective ratings have definite limitations. Some individuals responsible for rating programs still have only a hazy conception of the meaning of the words "reliability" and "validity."

The lack of follow-up to determine how nearly the objectives have been achieved. Yet the only basis for obtaining the support and interest of management is repeated evidence to demonstrate how employee rating has proved of value in dealing with operating problems.

Additional examples could be cited to further support the position that the industrial relations profession must become more scientific in its approach to employee rating before the prevailing discouragement with ratings can be dispelled. But more can be gained by considering the problem from a positive point of view.

BASIS FOR A SCIENTIFIC APPROACH

Just what is this scientific approach? Is it a magic formula? Is it a novel device? Is it a series of maxims? Will it make subjective judgments objective? The approach to be discussed in this article does not rely upon magic, nor on devices. It does not presume to make subjective judgments entirely objective; but it does endeavor to make them as objective as is possible. The approach is intended as a basic foundation and framework on which the industrial relations executive can build a sound rating program. It has been developed out of the experience of those industrial relations executives who did not shake their heads in discouragement. Their success can be accounted for by the following principle factors:

1. An understanding of the fundamentals underlying the rating process.
2. A systematic procedure for the development of a rating plan.
3. The use of trained personnel to install and administer the plan.
4. The support of management during the developmental stages of the program.

Let us consider each of these four salient factors in turn.

FUNDAMENTALS

The fulcrum of the entire rating program is the rater's judgment. Two major fundamentals underlie the process by which these judgments are made. They are the ability of the rater to make accurate and consistent judgments and his willingness to do so. It would be difficult to determine which one of these is neglected more frequently. In successful programs both receive attention whenever a decision must be made on some aspect of the rating program.

First Fundamental: Ability to Rate

Ratings are not an end in themselves, but are made to serve definite purposes. The degree of confidence with which ratings can be used in fulfilling these purposes will depend upon how accurate and consistent the raters have been in judging their employees. The ability of the rater to make accurate and consistent judgments is influenced by the following:

1. *The extent of his opportunities for observing the performance of the employee to be rated.* It should be self-evident that a rater must have numerous opportunities to observe the employee, but this is often neglected in practice. No ideal amount of time can be specified; the time will vary with such factors as the type of work being performed, the number of employees supervised, and the keeness with which the rater makes his observations.

2. *His consciousness of the prospective rating during the period of observation.* An extended period in which to make observations is of little value unless the rater is "rating-conscious" and is constantly translating his observations into meaningful judgments and recording them. Consistency and accuracy are jeopardized when annual ratings are based on retrospection only.

3. *His experience and training in translating observations into judgments.* This is another self-evident fact, but one that is often neglected. The ability to translate isolated and often contradictory evidence into sound judgments must be cultivated and, as applied to employee rating, is easily lost during long periods of disuse. Training of an exhortative type is of little value. Demonstration by actual cases of the "halo effect" is of more value than numerous admonitions.

4. *His personal characteristics.* The ability to rate will vary considerably with different supervisors. Little is known about the characteristics of the good rater as compared with those of the poor rater. It may be possible to narrow the gap between the two but it cannot be bridged entirely. Allowance must be made for this fact in interpreting and using ratings.

5. *The facility with which the rating form permits him to record his judgments.* Many supervisors can give you a fine word picture of an employee during a personal chat but have difficulty in transferring their judgments to a form in the prescribed style. More evidence is needed with reference to the relative effectiveness of the various forms in facilitating the recording of judgments. When seen in its proper perspective, however, the rating form is one of five influences that have an important effect upon the ability of the rater to rate.

Second Fundamental: Willingness to Rate

The willingness of the rater to formulate accurate and consistent judgments does not develop automatically, nor can it be obtained by edict. It is an attitude which can be nurtured only through attention to the influences directly related to the willingness of the rater to rate. The rater is influenced by:

1. *His understanding of the entire rating program.* The cooperation of the rater in performing the duties expected of him can more readily be elicited if he understands the entire rating program. He should be able to see the

need which the rating fulfills, how it will help him directly, how he fits into the picture, and how his employees will be affected by the ratings.

2. *His acceptance of the stated purpose of the rating.* Variation in rating results often occurs because the rater has established his own rating purpose which is different from the stated purpose. This happens frequently when a variety of rating purposes are established.

3. *His reflection of top management's attitude.* The busy supervisor must, in most cases, assign priorities to his many tasks. The rating process, as one aspect of the entire management process, will receive the interest and attention of the supervisor to the same degree that higher management displays interest and attention in employee rating.

4. *His experience in applying the rating to employees under his jurisdiction.* The supervisor will be willing to rate to the best of his ability when ratings have proved to be useful to him in performing functions for which he is responsible. Objections to the rating program are important in gauging the rater's willingness. An indirect outcome of many rating programs is the disclosure of weak supervision. Objections from some supervisors are often a reflection upon their own inadequacies, but regardless of the supervisor's attitude, his objections indicate a need for investigation and action to eliminate the causes of discontent.

SYSTEMATIC PROCEDURE

A systematic procedure for the development of a rating program involves five basic steps. These five steps are:

1. Establish the purpose.
2. Consider the components.
3. Develop a tentative program.
4. Try out the program.
5. Evaluate the results.

Step 1: Establish the Purpose

Employee rating is a tool and, as such, is designed to serve specific purposes. These specific purposes should develop out of the real needs of which both top management and supervision are aware; and in some cases the industrial relations executive must do preliminary spade-work to develop this awareness.

Three major purposes are served by employee rating:

1. *Personnel transactions.* Ratings provide a basis for determining which employees are to be given pay increases, promoted, transferred, demoted, laid off, discharged, etc. They also provide substantiation for action that might be questioned.

2. *Employee improvement.* Ratings provide a basis for the analysis of the strong and weak points of an employee so that both management and the employee can direct their efforts toward the development of personal characteristics, skills, or information that will make the worker a better employee. As mentioned previously, employee ratings also furnish evidence of weak supervision and thus provide a basis for training to improve supervision.

3. *Research.* Ratings provide a basis for establishing criteria to be used in evaluating the testing program, the training program, and methods of interviewing and placement.

Whatever the final purpose or purposes, each should be stated in terms that will have meaning to everyone affected by the program. The success of a rating program can be judged only in terms of the objectives for which it is established.

Step 2: Consider the Components

The list of 20 major components, each with at least three variables, may seem overwhelming at first glance. Actually, any company with a plan in current operation has made choices, in some cases unknowingly, of the variables for each of the components. The list is in the approximate order in which the components should be considered in developing a program rather than the order of their importance. Each of the possible variables has been used in a practical rating situation.

1. *Rating method*
   a. Check list (free and forced-choice)
   b. Grouping (forced and non-forced)
   c. Paired comparison
   d. Ranking
   e. Scale or chart
   f. Combination of above
2. *Program title*
   a. Employee, efficiency, merit, performance, progress, or service rating
   b. Report of efficiency, progress or performance
   c. Personnel report, inventory or assessment
   d. Other variations
3. *Method of installation*
   a. Imposed by edict
   b. Developed in cooperation with raters
   c. Developed in cooperation with raters and ratees
4. *Selling the program—all levels*
   a. Letters, notices, manuals
   b. Individual conferences
   c. Group conferences
   d. Speech by ranking official
   e. Combination of above
5. *Frequency of rating*
   a. Annually
   b. Twice a year
   c. Three times a year
   d. Four times a year
   e. Six times a year
   f. Monthly
   g. Weekly
   h. Irregularly
   i. Varied schedule
6. *Rating period*
   a. Simultaneous
   b. Staggered
   c. Special
7. *Rater*
   a. Self
   b. Associate
   c. Supervisor
   d. Specialist
   e. Combination of above
8. *Number of raters*
   a. One
   b. Two
   c. Three
   d. Four or more
9. *Rating process*
   a. Independent rating
   b. Combination of independent ratings
   c. Pooled rating arrived at in conference
   d. Independent rating subject to review by superior
   e. Rating with assistance of a specialist
   f. Joint rating by supervisor and employee
   g. Combination of above

10. *Classes of employees rated*
    a. All employees
    b. According to payroll classification (wage, salary, supervisory)
    c. According to job families
    d. By specific occupations
    e. Combination of above
11. *Extent of training given raters*
    a. Series of training sessions on rating purposes and procedures
    b. One session before and one after each rating period
    c. One session before each rating period
    d. No formal training
12. *Method of training*
    a. Individual instruction
    b. Group instruction
    c. Printed material, manual, instructions
    d. Participation in developing plan
    e. Practice ratings
    f. Combination of above
13. *Items or traits*
    a. Number of items or traits
    b. General or specific in nature
14. *Weighting of items or traits*
    a. As to relative importance
    b. Not weighted on relative importance
    c. Account taken of variability
    d. No account taken of variability
    e. Combination of above
15. *Adjustment for variation between raters and groups of raters*
    a. Differences equated statistically
    b. Differences not equated statistically
    c. Variation reduced by training
    d. No training used
    e. Pressure exerted by supervision on extreme raters
    f. No pressure
    g. Combination of above
16. *Scores*
    a. Numerical scores
    b. Descriptive adjectives or phrases
    c. Rater aware of final score while rating
    d. Rater unaware of final score
    e. Combination of above
17. *Comments on form*
    a. Comments or justifications of ratings requested on form
    b. No comments or justification
18. *Ratee knowledge of results*
    a. Discussion with supervisor
    b. Discussion with specialist
    c. Written communication
    d. Results posted
    e. Combination of above
    f. No knowledge of results
19. *Rating appeal*
    a. Rating subject to appeal or grievance
    b. Rating not subject to appeal or grievance
20. *Use of ratings*
    a. Top management
    b. Higher levels of supervision
    c. Industrial relations department
    d. Immediate supervisor
    e. Ratings used by combination of above

A detailed explanation of each of the foregoing variables would unduly extend this discussion. Also, no attempt will be made to suggest any preferred variable or groups of variables. One essential of the systematic procedure suggested herein is a realization that it is impossible to determine in advance

what variables or combination of variables will produce the most satisfactory results for a particular company. The initial decisions should be based on a survey of published reports, visits to other companies, the advice of trained personnel, and a review of previous rating attempts, if any, in the company.[1] These decisions made initially should be considered as tentative until they are actually tried and proved for each company.

Step 3: Develop a Tentative Program

Now that consideration has been given to the possible variables in the rating program, the third step is to develop a tentative program by selecting the variables that give most promise of fulfilling the purposes that have been established.

Let me suggest by actual example how the development of a tentative program might be carried out.

An impending cutback brought to the fore the need for rating in order that layoffs among supervisory employees could be determined on a merit basis. The established purpose was, therefore, "to enable the company to select the employees to be laid off in an anticipated cutback." A survey of the various methods of rating was made and a checklist method was selected. The checklist was developed over a period of three weeks with the active cooperation of the raters. The Performance Report was sold by means of letters, group conferences, individual instruction and a speech by a ranking official. Simultaneous ratings were secured on an alternate-month basis in order that a series of ratings could be obtained prior to the cutback.

Self-rating and mutual rating by associates were ruled out because of the purpose of the program and also because supervision was strongly opposed to such a method. The ratings of two supervisors were secured. Consideration of the process of rating brought forth heated arguments. One group wanted independent ratings combined to give a composite rating, while another group wanted independent ratings subject to review by superiors. Who was to say which rating process was better? So, rather than decide on an arbitrary basis, a preliminary rating was made in which both variables were given an actual try-out. On the basis of evidence thus obtained, an agreement was reached.

One rating form was designed for the entire group, since all supervisors to be rated were doing similar work. An intensive training program was not possible, but the development of the checklist provided an introduction to rating, and obtaining raters' opinions on the variables provided further orienta-

[1] The following is a selected list of references which provide valuable suggestions for arriving at initial decisions:

Halsey, George D., *Making and Using Industrial Service Ratings,* Harper & Brothers, New York, 1944, 149 pp.

National Industrial Conference Board, *Employee Rating,* Studies in Personnel Policy No. 39, New York, 1942, 119 pp.

Symonds, Percival M., *Diagnosing Personality and Conduct,* The Century Company, New York, 1931, pp. 41-121.

Tiffin, Joseph: *Industrial Psychology,* Prentice-Hall, Inc., New York, 1943, pp. 231-261; "Merit Rating: Its Validity and Techniques," *Personnel Series No. 100,* American Management Association, New York, 1946.

Vernon, P. E., *The Assessment of Psychological Qualities by Verbal Methods,* Industrial Health Research Board Report No. 83, Medical Research Council, London, 1938, pp. 43-88, 111-121.

An exhaustive list of published information on employee rating is provided in *Twenty Years of Merit Rating, 1926-1946,* prepared by the writer and published by The Psychological Corporation, New York.

tion. Two training sessions of one hour each were devoted to group instruction on individual differences, pitfalls in ratings, and administrative details.

In the checklist type of rating the number of items is usually large and individual items do not assume the importance that they do assume in other methods. From a preliminary group of several hundred statements of observable performance a total of 52 were selected after certain statistical procedures proved them to be the most satisfactory. Each statement was weighted as to relative importance, but no account was taken of variability. Reliance was placed upon training to reduce the variation between raters. A numerical score was computed in a central office so that the rater was unaware of the final score while rating. The form provided space for comments.

The ratings were not discussed with the employee, though this would probably have been desirable under other circumstances. Appeal was not possible because the employee had no knowledge of his rating. Higher level supervision used the ratings in cooperation with the immediate supervisor to determine which employees were to be laid off.

In this brief account of the development of a program it is apparent that the decisions were conditioned by the specific purpose established for this particular company at this particular time. It is likely that different variables could have been selected without changing the results. The important thing to note is that consideration was given to all aspects of the program, tentative decisions were made, and in some cases alternatives were tested.

Step 4: Try Out the Program

The next step after having made the tentative decisions is to put the program into operation—try it out. A common practice in the initial installation of a rating program is to have frequent ratings in order both to test the plan and to train the raters. Starting on a quarterly basis, ratings may later be extended to a semi-annual or annual basis. Providing for a try-out of the rating program for a definite period of time prevents management from expecting perfection immediately and also permits later changes to be made more readily.

In most instances the try-out period has been one year—in a few instances, only six months. The try-out of the plan used as an example in the previous section resulted in two discoveries: One group of supervisors were discriminated against by the nature of the form, and approximately the same results were obtained without weighting. The first discovery prevented serious errors; the second saved a great deal of time and simplified the process.

Step 5: Evaluate the Results

Certain clues have already been suggested for carrying out the fifth and last step in the systematic procedure required to develop a sound employee rating program. In making the evaluation two basic proofs of value are necessary. The first is evidence that the plan is good and produces accurate and consistent results. The second is evidence that the plan is a worth-while plan and that it is worth the money it costs.

Numerous analyses of relationships can be made to determine the "goodness" of the ratings. In most cases an elementary knowledge of statistics is

necessary to make the analyses suggested.[2] Among the methods of testing the adequacy of the ratings the following are most common:

1. Reliability—how consistent are the ratings?
2. Validity—how accurate are the ratings?
3. Distribution—do the ratings result in adequate spread and does it tend to a normal distribution?
4. Halo effect—is there a tendency for the ratings of one or more traits to influence the ratings given to other traits?
5. Inter-correlation between traits—do the ratings on different traits tend to be discrete?
6. Variation in average rating—is there a wide variation in the average rating of individual raters, the average rating of different departments and the average rating of employees in different occupations.
7. Relationship of ratings to the ages of the ratees, and to the length of time they have been on their present jobs and with the company.

Elaboration on the methods suggested above will not be attempted here. As mentioned in the beginning, the foundation of a good rating program requires trained personnel. To such personnel the above list will appear elementary.

A rating plan may be proved to be good from a statistical point of view, but, unfortunately, top management is not impressed with statistical terminology. A coefficient of correlation is more likely to impress them as a percentage of agreement. It is, therefore, necessary to secure evidence of the worth-whileness of the rating plan to satisfy management's demand for something practical.

The opinion of the rater, obtained through questionnaires, interviews, and group discussions, can be used. Positive statements from supervision of the value of the rating program, including actual examples of situations in which the ratings proved to be helpful, are excellent evidence. This suggestion presupposes that the rating program has been developed with sufficient skill to warrant the support of supervision.

Another type of evidence, extremely difficult to develop but worth intensive effort, is a demonstration that decisions made with the assistance of rating results have been better than those made without the use of ratings. Follow-up studies over an extended period of time are required to accumulate evidence of this type. A decrease in the number of supervisors who fail upon promotion to the next step, a decrease in the number of grievances with reference to salary increases or charges of discrimination, or a significant decline in absenteeism or turnover are examples of the type of evidence to be developed. Not haphazard guessing but controlled experimentation is necessary.

Periodic re-evaluation of the entire rating program is necessary. The plan must continue to make a direct contribution to the objectives established

[2] Descriptions of methods of evaluating ratings are given in the following references:
Driver, Randolph S., "The Validity and Reliability of Ratings," PERSONNEL, Vol. 17, pp. 185-191, February 1941.
Bolanovich, D. J., "Statistical Problems of Worker Evaluation," PERSONNEL, Vol. 23, pp. 210-218, November 1946.
Stead, W. H. and Shartle, C. L., *Occupational Counseling Techniques,* American Book Co., New York, 1940, Chapters 4 and 5 and Appendices.
Thurstone, L. L., *The Reliability and Validity of Tests,* Edward Brothers, Inc., Ann Arbor, Michigan, 1931, 113 pp. (out of print; obtainable only from libraries).
Tiffin, Joseph, *Industrial Psychology,* Prentice-Hall, Inc., New York, 1943, Chapter 9 and Appendix A.
Walker, H. M., *Elementary Statistical Methods,* Henry Holt & Co., New York, 1943, 368 pp.

for it. As time goes on conditions change; the purposes receive a shift in emphasis and the raters change frequently. An annual evaluation of the rating program is an established feature in many companies with successful programs. The requirement that the merit-rating tool be maintained properly and modernized when possible is not out of line with the demands of management in respect to maintenance of machine tools—the inanimate assets of the business.

TRAINED PERSONNEL

Thus far we have considered two of the factors that are basic to the scientific approach. Developing an understanding of the fundamentals underlying the rating process and following out the systematic procedure which has been outlined may seem exceedingly complex. This is not denied. Securing adequate results from a rating program is not a quick, easy job, nor is it a job for the untrained. Personnel trained in this area will find that the suggested approach is not so complex as it appears. It is important, however, in handling a tool which affects the employee as directly as does rating, to secure a skillful operator.

Two possibilities exist. Trained personnel may be available in the company, or it may be necessary to bring in trained personnel. Some companies release one of their regular employees long enough for him to secure a basic training in this area. Others utilize a consultant, who trains a regular employee to carry on the work after the initial installation. The choice will depend on the individual company. Invariably the companies reporting satisfaction with their programs used personnel who were trained or who secured adequate training. Hiring a skilled operator—in this case an individual with basic training in industrial psychology and statistics—is often economical in the long run. He can attack the problem and carry it through with fewer errors.

MANAGEMENT SUPPORT

The approach discussed thus far has been based throughout upon one important assumption which must now be stated explicitly. This assumption is that the rating program will receive the support and interest of management, especially in its developmental stages. A combination of understanding of fundamentals underlying rating, a systematic procedure, and trained personnel are not sufficient to produce a satisfactory rating program; nor will satisfactory results be obtained as rapidly as might be desired.

Driver has stated that the results achieved by a rating program are in proportion to the amount of energy expended. The hundreds of organizations that have developed and introduced a merit-rating program and then watched it die for lack of support are mute evidence in support of this statement.[3]

Don't expect management to support a hypothetical plan presented in writing. Nothing succeeds like success. A rating plan that succeeds is one

[3] Driver, R. S., "A Case History in Merit Rating," PERSONNEL, Vol. 16, May, 1940, pp. 137-162.

that fulfills real needs. It is necessary to demonstrate that the plan is fulfilling real needs if management support is to be gained.

Lack of support, symptomatic of most unsuccessful plans, may be a tacit indication of dissatisfaction with an inadequate plan. Management must, however, be aware that the development of a successful plan requires at least a year and in many cases two, three, and four years.

CONCLUSION

Science has been defined as "knowledge gained by systematic observation, experiment, and reasoning; knowledge coordinated, arranged, and systematized." Can we not accumulate, in regard to employee rating, knowledge gained by systematic observation, experiment, and reasoning? Can we not coordinate, arrange, and systematize that knowledge? I think we can.

Four principal factors have been suggested as a basis for getting more scientific in rating employees: understanding of rating fundamentals, a systematic procedure, trained personnel, and the support of management. The emphasis has been placed upon building a positive program—a program to encourage more detailed consideration of some of the basic principles which all too frequently have been ignored in rating employees. An attempt has been made to present a complete outline of the factors to be considered and the steps to be taken. The procedure may appear to be difficult; certainly it is not simple. There is no royal road to a simplified rating program.

Not only do I think we can get more scientific but I also think we *must* get more scientific. A recent survey conducted by *Fortune* (January, 1947) hits most industrial relations executives squarely between the eyes. Forty per cent of our employees do not feel that working harder on their job will pay off in promotion or advancement. Half our factory workers and nearly one-third of our professional and executive employees feel that way. *Fortune* places this emphasis upon the findings: "Since the lack of incentive among factory workers and particularly among union members seems to be accurately reflected in today's output figures, the problem ranks as a primary concern of the U. S. economy today." The individual in the economy who should be most concerned about this lack of incentive is the individual responsible for industrial relations. Industrial relations executives who are concerned about this lack of incentive cannot fail to consider employee rating. It is true that employee rating is only a partial answer to the developing of incentive, but an employee rating program developed with a scientific approach, a program which provides information on which to give consideration to those employees who demonstrate greater effort, higher skill, and superior performance can certainly be considered a step in the right direction.

RATING EXECUTIVE QUALITIES

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While merit rating is most frequently applied to personnel below the executive and supervisory levels, its extension to those levels is justified on several counts. Carefully planned application of rating scales can assist in identifying and developing men of varying potential abilities and in locating executive talent. The rating scale presented here by Mr. Cleeton—embodying some of the characteristics of a graphic scale and some of the elements of a graded multiple-step scale—can be used to provide a significant picture of trait relations. Mr. Cleeton is co-author with Charles W. Mason of *Executive Ability: Its Discovery and Development*, recently issued in a revised edition.

ANALYSIS of executive functions, with reference to company organization, and analysis of executive ability, as found in persons holding executive positions, make possible the specification of a list of traits which are highly significant in the personality of an individual who must assume executive responsibilities. To some extent the presence of such traits in executive personalities has been verified experimentally.[1] The identification of executive traits represents a broad step in the direction of more reliable selection and training of prospective executives, and also provides a basis for evaluating present executives. However, attempts to utilize knowledge of the nature of executive traits are likely to be highly subjective unless techniques of systematic rating and measurement are adopted.[2]

Among the traits which are unquestionably involved in executive ability, the following can be rated with reasonable objectivity: (1) ability to make decisions, (2) ability to assume responsibility without undue strain, (3) sensitiveness to human traits and reactions, (4) personal habits, appearance, and manner that build and maintain confidence, (5) technical knowledge, experience, and training, (6) integrity, fairness, and sincerity, (7) forcefulness, energy, and perseverance, (8) ability to inspire, teach, and develop men, (9) power of analysis, discrimination of relative values, (10) open-mindedness, (11) tact and self-control, (12) health.

The rating of executive qualities can be most effectively accomplished by use of rating scales. However, persons who have had experience with rating scales will readily recognize that the form in which the scale is presented to the rater has a distinct bearing on the objectivity of ratings. To overcome some of the limitations presented by graphic and other multiple-step rating scales, a new form of rating scale for executive traits has been developed by the author. This scale, which is reproduced herewith in full, can be used for qualitative analysis of executive ability; or it can be numerically scored by assigning scaled values to the five categories under each trait classification.

[1] See Cleeton, Glen U., and Mason, C. W., *Executive Ability—Its Discovery and Development*. Antioch Press, Yellow Springs, Ohio, 1946, pp. 100-129.

[2] It is not the purpose of this paper to discuss the measurement of executive traits. While it is recognized that rating and measurement are closely related, the techniques are so distinct as to require separate treatment. For a discussion of the measurement of executive traits, see Cleeton, Glen U., and Mason, C. W., *Executive Ability—Its Discovery and Development, op. cit.*, pp. 130-217.

The arrangement for checking ratings also permits the scale to be used as a profile of executive traits.

USING ACTIVITY SCALES

It will be noted that the traits included in this scale are general in nature. Where responsibilities can be clearly designated, a more specific activity scale is often found useful as a supplementary rating device. However, such scales can be developed only on the basis of job specifications which establish the major objectives of a particular job and in relation to operating conditions within a particular company. Care should be taken in making estimates of executive ability from specific activity scales because they usually include ratings of functions which do not fall at the executive level. For example, in an activity scale, supervisory executives may be rated on ability to meet production requirements with respect to quantity, quality, time schedules, cost control, methods improvement, and other operating routines in addition to executive functions.

Rating of an individual on an activity scale tends to reveal adequacy of present performance, whereas rating on a broader executive-trait scale provides a basis for predicting potential growth. This is especially true if a scale such as the Executive Rating Scale is used periodically and evidence of growth and improvement is noted. For many situations, finding a basis for predicting potential growth is as important as obtaining evidence of present performance; in fact, it may be more important.

PURPOSES OF EXECUTIVE RATING

Periodic rating and appraisal of persons discharging executive responsibilities is an accepted practice in many companies and is a procedure recommended by leading authorities on personnel development. Such ratings may serve many purposes, among which the following may be accepted as the most important in relation to executive development:

1. Discovering and developing talent.
2. Selecting for key positions men who possess the highest qualifications.
3. Maintaining and improving the quality of personnel in all important positions.
4. Discovering and eliminating unsuitable men; transferring men in key positions who are inadequately qualified.
5. Upgrading by correcting weaknesses through discussion, guidance, and training.
6. Discovering which men deserve promotion or change of position.
7. Adjusting compensation.
8. Stimulating morale.
9. Encouraging the study of personnel problems by supervisors.
10. Providing continuous and permanent records of potential-growth employees.

PRECAUTIONS RECOMMENDED

No discussion of rating would be complete without the usual precautions against possible limitations and misuse of rating scales and their products. In the rating of executive personnel, the following precautions are recommended:

1. *Raters should guard against the concomitant factor known as the "halo effect."* This terminology is used to describe the tendency of weak or strong traits to color the opinion of the rater on other traits. With some raters

EXECUTIVE RATING SCALE [3]

Instructions: Place a check mark in the square opposite the appropriate description. Include comments, both favorable and unfavorable, which may be helpful in further clarifying your rating.

ABILITY TO MAKE DECISIONS

Slow, vacillating, and unreliable ☐
Often unable to weigh factors involved and slow in reaching a decision ☐
Cautious and hesitant, but sound decisions eventually reached ☐
Usually prompt and accurate in reaching decisions ☐
Objective, accurate decisions rapidly reached ☐
Comment:

ABILITY TO ASSUME RESPONSIBILTY WITHOUT UNDUE STRAIN

Nervous, fussy, and often appears over-burdened ☐
Anticipates troubles and frequently worries over possible consequences of acts or decisions ☐
Usually free from worry and meets problems as they arise ☐
Knows what he is supposed to do and is rarely concerned about consequences of decisions ☐
Faces responsibilities calmly, faces facts squarely, and accepts consequences of decisions ☐
Comment:

SENSITIVENESS TO HUMAN TRAITS AND REACTIONS

Inconsiderate and often arouses antagonism ☐
Indulges in bluffing, bullying, and boisterous argument ☐
Understands desires of others and responsive to feelings of others ☐
Good judge of people, sympathetic, and encourages co-operation ☐
Keenly alert to human nature, persuasive, and self-controlled ☐
Comment:

PERSONAL HABITS, APPEARANCE, AND MANNER THAT BUILD AND MAINTAIN CONFIDENCE

Slovenly, hesitant, evasive ☐
Accepted but not respected, often ill-mannered ☐
Conventional in habits, attitude, and manner ☐
Neat, straightforward, and confident ☐
Clean-cut, assured, and dynamic ☐
Comment:

TECHNICAL KNOWLEDGE, EXPERIENCE, AND TRAINING

Lacking in all three or seriously weak in one ☐
Marked weakness in one or two of these factors ☐
Any weakness in one fairly well compensated for by strength in other factors ☐
Adequate knowledge, experience, and training for the usual demands of the job ☐
Thorough training which has resulted in mastery of facts backed by experience ☐
Comment:

INTEGRITY, FAIRNESS, AND SINCERITY

Tricky and not to be trusted ☐
Frequently suspected of sharp dealing by others ☐
Honest according to his own judgment, tries to be fair but is not always sincere ☐
Honest and sincere but not always able to convince others of his fairness ☐
Makes everyone feel that that he is honest, fair, and sincere ☐
Comment:

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EXECUTIVE RATING SCALE

(Reverse)

FORCEFULNESS, ENERGY, AND PERSEVERANCE

Indifferent, weak, and gives up easily ☐
Efficiency hampered by deficiency in one or more of the three characteristics ☐
Consistent worker and carries task to completion, but not forceful ☐
Energetic and persistent, usually forceful ☐
Positive, persistent, and vital to an exceptional degree ☐

Comment:

ABILITY TO INSPIRE, TEACH, AND DEVELOP MEN

Unable to transmit knowledge or encourage others in self-improvement ☐
Able to teach but uninspiring ☐
Successful in teaching but does not motivate ☐
Presents material clearly, interestingly, and encourages further study ☐
Gifted in the power to stimulate and direct the development of others ☐

Comment:

POWER OF ANALYSIS, DISCRIMINATION OF RELATIVE VALUES

Hazy and confused in his thinking ☐
Slow and erratic in analyzing a situation ☐
Usually sees problem clearly, assigns correct values, but over-deliberate in analyzing details ☐
Can pick out important points in a problem, and arrive at correct conclusion ☐
Keenly analytic and capable of weighing accurately all factors in the problem ☐

Comment:

OPEN-MINDEDNESS

Prejudiced and opinionated, unwilling to change mind in the face of new elements ☐
Frequently biased by former opinions ☐
Usually free from prejudice and willing to revise opinion ☐
Receptive and never lets old judgment blind him to new facts ☐
Alert in seeking new facts and revises opinions when evidence warrants ☐

Comment:

TACT AND SELF-CONTROL

Blunt in statement and frequently becomes angry or excited ☐
Often irritates others by speech or manner ☐
Rarely loses control of temper and seeks to avoid conflict ☐
Considers others' attitudes, is restrained and diplomatic in trying to overcome differences ☐
Self-controlled, considerate, courteous, calm, and extremely tactful ☐

Comment:

HEALTH

Ill health and nervous indisposition often interfere with work ☐
Frequent periods of illness, lacks vigor and vitality ☐
Loses little time because of illness but uses more energy than the job requires ☐
Has reserve energy to devote to problems beyond those required in the day's work ☐
Display of health and vigor stimulating to others ☐

Comment:

Lines may be drawn connecting the checks marks for the various traits in order to provide a graphic picture of trait relations.

this tendency may go so far as to result in a general impression of the person being rated which may be reflected in the rating of each and every trait.

2. *Raters should guard against "stereotypes."* This is a tendency found in some persons which leads them to record all ratings either toward the upper or lower or center portion of the scale. With some persons this habit may be so firmly established as to disqualify them as raters; in others it may be mildly evident and require the adjustment of ratings to correct for rater bias.

3. *Raters should be trained.* Such training should include discussion and demonstrations of "halo effects" and "stereotypes." Other topics which should be covered in rater instructions include: (a) purpose of the particular rating plan, (b) range and scope of human abilities, including such concepts as "normal distribution," (c) relation of the rating plan to other personnel practices—e.g., selection, training, promotion, wage standards, etc., (d) the mechanics of filling in forms, meaning of items, and standards implied, (e) use of results, (f) answers to problems or questions suggested by raters growing out of previous experience or trial ratings using the form under consideration. Conferences, group discussions, or individual coaching should supplement printed instructions.

4. *Raters should be given an opportunity for supervised practice.* No form should be introduced and used before raters have been given an opportunity to try out the form and discuss the results.

5. *Each person under observation should be rated by at least three raters.* Averages of ratings may be taken, but frequently agreement by two out of three raters on a trait for a particular person is a better guide than an average of the three ratings.

6. *The rating plan should be "sold" to those on whom it is used as well as to those who do the rating.* One way to sell those being rated, as well as to convince the raters of the importance of care in filling in the forms, is to let the ratees rate the raters.

7. *Ratings should be made periodically, not sporadically.* They should be made at least once a year, but not oftener than every six months.

8. *Ratings should be reviewed, either by a superior, by a personnel department representative, or by a reviewing committee.* However, once a rating is made, it should not be changed without the consent and concurrence of the person who did the rating.

9. *Ratings should be discussed with the ratee, preferably by a third party.* Often a personnel department representative is best qualified to undertake this important task. In such discussions the person who has been rated should be put at ease, and the interview should include commendations for qualities favorably rated and suggestions for improvement of qualities unfavorably rated.

10. *Wherever possible, ratings should be checked against other available objective evidence.* This provides a means for determining the merit of ratings in general, provides a check against individual raters, and may suggest ways of improving the rating form.

11. *Persons applying the results of ratings should clearly recognize that ratings are only approximations.* It should be understood that they do not tell the whole story about the person rated, and that they are most useful when applied in connection with other information.

12. *Raters should be reasonably well acquainted with the persons they are rating and the work which they do.* However, too close a relationship between rater and ratee is sometimes a handicap.

THE ARMY'S PERSONNEL RESEARCH LABORATORY

By JOSEPH W. EATON [1]

Of interest to all personnel managers are the methods for testing, selection, and placement of rank-and-file and executive personnel used by the largest single employer in the United States—the War Department. The development of these methods represents a huge investment—not alone in money but in combined skills and intensive research. While all Army personnel procedures obviously are not applicable to industry, some show rich possibilities for adaptation. The author discusses the Army program from the industrial personnel director's viewpoint and indicates sources of further information for interested readers.

DECEMBER 7, 1941, started out as just another Sunday, a day of rest and devotion for most Americans. When it ended, the country was at war, a total war of survival against powerful enemies who had inflicted a heavy blow of surprise at Pearl Harbor. Fortunately, the personnel management officers of the Army were not unprepared for the great task of converting the nation's civilian manpower into a fighting force. During the operations of Selective Service much had been learned about psychiatric screening to eliminate those obviously unfit for military service. Until 1940 the classification and assignment of personnel had been considered almost a clerical function, but then the Army had begun to assemble a staff of qualified officers, civilian personnel experts and psychologists, while USES specialists had begun to develop tools for the improvement of the Army's personnel system. During the war, this organization became perhaps the largest group of personnel research specialists ever assembled as a staff. It developed more than 300 different tests, not including alternative forms and preliminary editions. One or more of these tests was administered to almost every soldier in the service.

This organization, known as the Personnel Research Section of the Personnel Research and Procedures Branch, the Adjutant General's Office, is now charged with the responsibility of developing the tools, tests, and techniques required for the effective staffing of the peacetime Army and for its rapid expansion, should general mobilization ever become necessary again. The mistake made after World War I was not repeated, when personnel research, which had begun to make promising contributions, was completely scrapped. Then, scientific matching of men and jobs had been well on the

[1] Appreciation is due to the staff of the Personnel Research Section, whose files and experience form the basis of this article, particularly Drs. E. Donald Sisson and H. Brogden, who read the manuscript and made many valuable suggestions.

way when the Germans surrendered on November 9, 1918. The Army Alpha and Beta tests of general learning ability had been developed. Use of these made it possible to identify and reject many recruits who were limited mentally or lacked minimum essential education. A qualification card had been devised to record each soldier's qualification previous to and during his service. Group tests had also been introduced and some job descriptions had been written. But when the Army returned to peacetime standards after World War I, it fell back, with a few noteworthy exceptions, on a more or less haphazard and unscientific budgeting of its manpower.

PROGRESS DURING WORLD WAR II

Personnel Research during World War II developed an over-all classification system for administering a diversified manpower pool of many millions. This system, to be sure, made few outright innovations or discoveries of new methods. It was built up largely by applying and improving techniques which had been developed by psychological laboratories of universities and by private industry. This development and application on the tremendous Army-wide scale was facilitated by the use of three "thinking" machines, which were capable of interpreting large numbers of written records practically with the push of a button:

1. The IBM Key-Punch-Verifier-Tabulator-Sorter machines. They tabulate up to 80 items of information about an individual on a single card and permit a mechanical sorting and correlation of these facts for thousands of cases.
2. Test scoring machines, which score paper-pencil type tests accurately and automatically. As many as 150 questions can be scored electrically within the split of a second.
3. Modern calculating machines for statistical computations.

The tests were mostly of the paper-and-pencil variety. Some were entirely verbal. Others also involved the manipulation of mechanical devices. These tests, some of which may be of interest to industrial personnel managers, can be grouped roughly into two types:

1. *Aptitude Tests*—tests of basic intellectual, cultural, social, sensory, or manual skill. They can be administered to persons with a minimum of formal training, though soldiers with previous education or experience in the skill for which the test has been designed are likely to get a relatively high score. This group of tests includes tests of general intellectual aptitude, such as the Army General Classification Test (AGCT), which was administered to almost every soldier during World War II and is, therefore, the most widely used psychological test in the world. Others in this category were the Army Individual Test and Non-Language Test for non-literate or non-English-speaking soldiers, Officer Candidate Test, and the West Point Aptitude Tests for officers, and the Mental Alertness Test for women. Tests were also designed to measure the following specialized aptitudes:

Mechanical Aptitude
Clerical Aptitude
Radio Code Aptitude
Night Vision Aptitude
Weather Observer Aptitude
Aircraft Warning Aptitude

2. *Achievement and Proficiency Tests*—to evaluate a soldier's proficiency

in his occupational specialty. They are useful in assigning competent men to jobs or placing them into advanced training courses. They also have been administered to civilian applicants for employment by the War Department. Achievement and proficiency tests have been constructed for the following subjects:

Clerical work
Dictation
Typing
Map reading
Carpentry
Construction work
Cryptography
Drafting
Dental Laboratory Technician
Medical Hospital Technician
Surgical Technician
Welding
Verbal Ability
Shoe Inspection
Power Sewing Machine Operations
Auditing
Typography
Automobile Driving
Mechanics, Automobile, Diesel, and others
Electricity
Radio
Signal Communications
Cooking
Demolition
Pharmacy
Photography
Plumbing
Water Supply Technician
Warehouse Operations
Technical Reading
Punctuation
Inspection Speed
Animal Transport
Munition Ordnance

With the help of these tests and the *Dictionary of Occupational Titles,* which describes every known type of occupation, soldiers could be assigned index numbers for every one of their civilian and military skills. Through the use of these numbers, which were part of the permanent record of each soldier, requisitions and assignment of specialists could be made quickly and simply. Ready-made units could be assembled overnight by making a requisition of so many men of each specific specialty number.

Temperament and personality proved to be a more difficult area for testing. Early in the war the Army made informal use of a variety of rating sheets and interview situations, none of which were found to have much validity. Despite the fact that Army personnel experts were dealing with large numbers of applicants for many similar positions, and thus had the unusual opportunity for experience with specific job placements which few industrial personnel managers have an opportunity to obtain, it was found that selection on the basis of the usual recommendation and placement interview was often unsatisfactory. It is probable that these methods are equally unreliable when used in industry. However, the current leadership selection studies, show promising indications that temperament and personality are not immune to scientific testing.

LEADERSHIP SELECTION STUDIES

The selection of qualified leaders to serve as commissioned officers in the Regular Army constitutes one of the major current accomplishments of the Personnel Research Section. Its work along these lines is of particular importance to industrial personnel managers, who are concerned with the hiring and promotion of foremen, department heads, and young executives. In this area, Army research is continuing to make important original contributions to the methodology.

Many selection problems in industry on the basis of past performance are

somewhat simpler than they are in the Army. For example, it is not too hard, comparatively speaking, to select a good salesman. One needs only to look at his sales record. No such simple yardstick can be applied to measure good leadership, to select the best fighters, administrators, and "all-round" officers. There was no disagreement among high Army officials that leadership was an important quality in any prospective officer, but different commanders had divergent ideas of what constitutes leadership. Before any test could be developed, it was necessary to agree on a standard or criterion. It was finally decided to adopt as the criterion of competence the overwhelming opinion of fellow officers of all ranks.

To identify individuals according to this criterion, officers of many different units were asked to rate one another on the value of their services. In all, over 13,000 officers were rated by several others who knew them well and who served with them in training or even in battle. Among the 13,000, there were approximately 1,000 officers who, in the opinion of all raters were *superior;* 1,000 who were agreed to be *average;* and almost 1,000 who were agreed to be *inferior.* Data on the other 10,000 officers, who were not rated clearly and consistently by all raters, was discarded.

The next step was to discover the attributes of these 3,000 *superior, average,* and *inferior* officers. They were subjected to many tests and were asked hundreds of questions. After much research, three tools of classification were developed, each of which was found to differentiate reliably between the three grades of quality.

1. *The Biographical Information Blank.* This is a self-rating information blank, filled out by each applicant, rating his personal background, personality traits, and usefulness to the Army. It includes many questions of the *forced choice* type, where the applicant must rate himself in a manner which makes it almost impossible to falsify his personal background to make it look good when it isn't.

2. *The Officer Evaluation Report.* This is a detailed rating blank filled out by one or more of the applicant's previous commanders who were well acquainted with his work. It rates his general background, personality, and usefulness to the Army. Here too, *forced choice* questions are used to eliminate prejudice in the ratings.

3. *The Standardized Interview.* High officers were given special training to conduct a standardized interview of each applicant under a uniform procedure to get an estimate of his ability to meet and deal with people. The boards of officers were not given any previous information about the person they interviewed. They met him "cold" for the first time, and had to base their judgment solely on the impression he made on them. After the interview, each member of the board independently filled out a set of carefully constructed objective rating sheets. As a result, these interviewers approached each man in about the same way and measured him by the same standards throughout.

Officers with wartime experience who are now being considered for appointments in the Regular Army must undergo this screening process. It was found that the three tests have a combined multiple correlation of .67 with the criterion. In other words, the gain in "goodness" made possible by selecting officers with these tests is 67 per cent of the gain that would be achieved

by selecting on the basis of the criterion itself. The probability that a man who gets a high score on these tests would turn out to be a complete failure is even smaller.

For reasons of military security, much of the important data, which would be of interest to industrial personnel managers, cannot be released at this time. The value of this research in leadership selection will have to be tested over a longer period of time. But the work done so far demonstrates that it is possible to construct tests which can predict leadership, defined by a clearly stated criterion, with a considerable degree of validity. It is probable that the same technique could be used to develop an industrial leadership test.[2]

INDUSTRIAL APPLICATION

Few of the Army tests can be used in their present form by industrial enterprises, but most of them could be adapted for such use. The tests were designed to meet the special needs of a military organization and were standardized on a military population. Industries often might want to test their employees for varied aptitudes or skills, but they are likely to get better results if a test is designed for their special needs. Moreover, many of the Army tests are still in use and therefore cannot be published. However, specific inquiries by interested industrial personnel managers may be directed to the Personnel Research Section, United States Army, 270 Madison Avenue, New York City.

Not all Army tests were equally good, valid, and reliable. Many tests underwent frequent revisions, trimming, and refinement to improve their validity and reliability. Some had to be discarded. These failed to discriminate sufficiently between different levels of ability or were found to have no relation to practical achievement on the job. However, the tests did much to eliminate guesswork, favoritism, and pure chance in the assignment of men to training courses and jobs. Tests were moderately successful in weeding out in advance a large proportion of those who were unfit and gave those most highly qualified a more than even chance of being selected. They made possible Army-wide standards for the evaluation and employment of men, replacing the erratic and variable judgment of officers who differed in understanding, experience, and opportunity to pass judgment. It gave higher commands a reasonably clear index of their manpower resources, which, if expressed in test scores, could be handled statistically.

The Army system of classification, which has been outlined briefly, could be adapted to many industries, particularly those with large numbers of employees. Most personnel departments of large organizations already make use of tests in some of their activities. The Army system might serve as an example of a method by which the entire process of personnel selection and classification can be based on a scientific system of measurement with some degree of validity.

The expense of constructing the tests and maintaining this over-all system of personnel classification is considerable. In some industries, the cost is undoubtedly greater than any potential benefits that might be derived. How-

[2] For additional details, the following references should be consulted: E. Donald Sisson, "What War Department Psychologists Do," *Army Information Digest*, December, 1946, pp. 46-51; also James Mitchell Clarke, "Picking the 9,000," *Infantry Journal*, July, 1946, pp. 7-13.

ever, the War Department is the largest employer in the United States. In time of war, it becomes the custodian of a considerable sector of the nation's total man- and woman-power. It must be ready for a sudden emergency, in which the very survival of the nation might be at stake. The War Department, therefore, cannot afford *not* to have the best system of personnel management which modern science can furnish. At present, much personnel work in industry is still based on the intuition of experts—whose intuition, though often good, might be more reliable. Management will do well, therefore, to watch Army pioneer developments in this field.

Appendix

SELECTED REFERENCES ON PERSONNEL RESEARCH IN THE UNITED STATES ARMY

Title	Number	Date	Content
Personnel Classification Tests.	TM 12–260	April '46	Principles and techniques of test construction. Use of testing in the Army.
Personnel Classification.	TM 12–425	June '44	Classification procedures. Use of records, especially WD AGO Form No. 20.
Civilian Occupational Classification of Enlisted Personnel.	TM 12–426	July '44	Job descriptions and specifications. Serial numbers of civilian occupational specialties with suggestions for comparable military assignments.
Officer Classification—Commissioned and Warrant. Classification and Coding of Civilian Occupations.	TM 12–405	October '43	
Military Occupational Classification of Enlisted Personnel.	TM 12–427	July '44	Job descriptions of military occupational specialties. Code numbers and list of substitute skills.
Officer Classification—Commissioned and Warrant. Military Classification and Coding.	TM 12–406	October '43	
The Evaluation, Classification and Assignment of Military Personnel in the United States Army.	WD Pamphlet 12–8	July '44	Well-illustrated manual on the personnel administration procedures of the Army, both for its operation and for separation of soldiers after service.

AMA SPRING PRODUCTION CONFERENCE

A Conference of the Production Division of the American Management Association, featuring several addresses of interest to personnel executives, will be held on Thursday and Friday, April 24 and 25, 1947, at the Hotel New Yorker, New York City.

WOMEN'S HOURS OF WORK: A SURVEY

By FRIEDA S. MILLER
Director
Women's Bureau
U. S. Department of Labor

Covering a period when the war stimulated all-out production, and factors more cogent than economic need alone were conducive to staying on the job, the findings of the study reported on here by Miss Miller are nevertheless indicative of the performance that can be expected by women factory workers under different hour-schedules in peacetime. The author also discusses the many off-the-job responsibilities that must be considered in setting up a suitable and efficient work schedule for female employees. Optimum hours from the production standpoint, according to this survey, fall somewhere between 40 and 48 per week.

ANALYSIS of women workers' factory performance under different hour schedules indicates that their total production cannot be increased by lengthening scheduled hours much beyond 48 a week. This was one of the most significant findings of a Women's Bureau study of the effect of different hour schedules on the productive efficiency, attendance record, and home life of women workers.* The study is of unusual importance because it deals primarily with the individual worker's factory performance and personal adjustments rather than with the mass adjustments of a group of workers, and it takes into account not only the factory conditions but the off-the-job responsibilities of the women.

Though the survey was made in the war period, when the motivation for production was impelling, and when factories employed many housewives and other women not normally in the labor force, many of the factors and problems involved are of equal importance in the consideration of peacetime hours.

The basic question which the study sought to answer—in view of a reported slowing down of war production in the summer of 1943—was: "What scheduled hours are best to maintain a stable, healthy staff of women workers able to carry on a sustained, high-quality production over an extended period?" The survey covered the performance of women workers under different scheduled hours in 13 plants, and included a total of 3,261 women in selected occupations involving varying degrees of skill and of physical and mental demands. A great variety of scheduled hours was included. Daily hours ranged from 7½ to 10½, and weekly hours from 40 to 60.

So that the findings of the study might be of greatest possible value, a tremendous sifting process was employed to find plants where valid comparisons could be made of women's work performance under different hour schedules. In determining whether a plant was suitable for study under various scheduled hours, the first consideration was that at least two different schedules must have been in operation in a woman-employing department for extended periods during the war. Since urgent war needs naturally stimulated production, comparisons of short-hour prewar periods with long-hour war periods would not be valid.

A second essential in selecting plants for study was to preclude as many variables as possible, other than hours, from the comparison. The performance

* A review of this Women's Bureau study (*Women's Wartime Hours of Work*) will appear in the April issue of THE MANAGEMENT REVIEW.—*Editor.*

to be compared under different hour schedules had to be on essentially the same product, manufactured with the same tools and equipment, under the same working conditions; and for the best contrasts in productive efficiency, the women had to have the same length of experience, and had to have attained proficiency on the job.

The third consideration was that women must be on jobs other than machine-paced operations requiring only watching on the part of the worker. Only jobs in which pace was determined largely by the worker were suitable for the study.

Finally, it was necessary that individual records be available on work history in the plant, quits and transfers, attendance and production.

The survey was limited geographically also, since the only States in which the studies could be carried out were States with basic hour laws permitting women to work more than eight hours and States with wartime legislative amendments permitting such employment. In searching these States for plants which met the four requirements listed above, a total of 150 plants was covered, and only 13 of these plants in seven States—Connecticut, Rhode Island, Pennsylvania, Tennessee, Ohio, Michigan, and Kansas—were found suitable for study.

After these plants had been found, another sifting process began in regard to the selection of occupational groups, for the variations in occupations and working conditions in the different departments of a plant made it necessary to confine the study to specific operations in one or more departments. Jobs were selected that involved varying skills, strains, physical and mental demands. Each job was analyzed in detail, so that any influences of varying physical and mental demands would be ascertainable. Any exceptional conditions of such factors as temperature, humidity, dust, ventilation, light, noise, vibration, and crowded aisles were noted.

The occupational groups and the products made in the plants in which they were at work are:

Occupational Group	Product of Plant
1. Stator winders, armature winders, armature connectors, coil winders, coil tapers, etc.	Fractional horsepower and industrial motors
2. Punch-press operators	Cylinder head gaskets
3. Punch-press operators	Oil seals or grease retainers for ball bearings
4. Precision drillers and automatic-machine operators	Rotors for artillery ammunition
5. Machine lappers	Injector bushing for Diesel engines
6. Metal fabricators, solderers, welders, and sheet-metal assemblers	Aircraft radiators, oil coolers, cabin heaters
7. Riveters and general aircraft assemblers	Aircraft
8. Light-machine operators, bench assemblers, and inspectors	Roller, silent, and conveyor chains
9. Light-machine operators, bench assemblers, and inspectors	Electrical connectors
10. Hand packers	Builders' hardware
11. Loopers and seamers	Full-fashioned hosiery
12. Loopers and transfer top knitters	Seamless hosiery
13. Power-sewing machine operators	Corsets and brassieres, and parachutes

From plant records, Women's Bureau field agents collected personnel, attendance, and production data, as well as illness and accident statistics. In addition to this information, a sample of from 15 to 40 per cent of the women studied in each plant were interviewed in their homes.

Because the plants involved were located in 11 communities ranging from rural towns to metropolitan centers, and because they were in seven States, women studied had different nationality backgrounds and diverse living and social standards. A total of 566 women were interviewed not only to determine their home demands and the effects of different hour schedules on their home and personal life, but also to get information that aided in the interpretation of production data secured in the plant.

PERFORMANCE ON THE JOB

In most of the plants studied, there were incentive wage systems with individual efficiency ratings that indicated comparative production. These plants had a standard unit time set on all productive operations. "Standard hours produced" divided by actual hours worked on an incentive basis gave a quotient called "efficiency." The efficiency rates were used as a measurement of relative efficiency under different scheduled hours in these plants.

In other plants, average hourly piecework earnings were used as a measure of efficiency. When identical pieces were produced and the operation on that piece remained the same, the number of units produced could be used as a measure of output.

In the 13 plants studied, 17 occupational groups had a sufficiently large number of women with at least a year's experience to allow comparisons in efficiency. Since some of the groups were studied under more than two different hour schedules, there was a total of 21 comparisons of efficiency among the 17 occupational groups.

Analysis of these comparisons showed that, as hours were increased, productive efficiency remained the same—or practically the same—in 10 instances, decreased in four instances, and increased in seven.

In no occupation did the efficiency of the women vary widely under the different scheduled hours studied, but since the women either would not or could not work excessively long hours per week, it was never possible to compare productive efficiency under widely different hours.

Even though weekly schedules of as long as 54 to 60 hours were studied, the majority of women never worked more than 48 to 50 hours under these longer schedules. When weekly hours were limited to around 48 and 50, regardless of the factory's work schedule, individual productivity seemed little affected by daily hours worked.

Productive efficiency on a 48-hour workweek was found to be not significantly different from productive efficiency on a 40-hour week. Four occupational groups among those studied had changed from an eight-hour day 40-hour week to an eight-hour day 48-hour week. Each of the four groups had had a year's experience or more. Of these four groups, two had a lower

efficiency rate under the longer hour schedule, one had a higher efficiency rate, and the efficiency of the fourth group remained about the same.

Since these studies were made during the war, there was at all times a considerable stimulus for maximum production and good attendance on the job. Under peacetime conditions, when there is not this stimulus, it might very well be that productive efficiency could not be sustained under hours as long as 48 and 50 a week.

There were several examples which indicated that, under wartime conditions, hours of work can be lengthened to around 48 a week without lowering productive efficiency. Loopers in a full-fashioned hosiery mill went from an 8-40-hour schedule to a 9-45-hour schedule, and their efficiency remained practically the same. Loopers in a seamless hosiery mill changed from an 8-40-hour schedule to a 50-hour schedule of eight and nine hours a day, with a resulting increase in efficiency, but when these same workers went from a 50-hour to a 52- and 57-hour week, their efficiency decreased slightly.

Five groups of women working as stator winders, armature winders, armature connectors, coil winders, coil tapers, etc., changed from an 8-hour day and 48 hour week to 10 hours a day and 50 or 55 hours a week. Three of these groups maintained the same general level of efficiency in both periods, and two had a higher efficiency rate in the longer period.

ATTENDANCE ON THE JOB

While the productive efficiency of women workers may not vary greatly on changing from a 40-hour to a 48- or 50-hour week, time lost from the job mounts with lengthening hour schedules.

Women workers studied had the best record of attendance under the 8-40-hour schedule and the different schedules of 7½ to 7⅗ hours a day and 42½ to 45 hours a week. Hours lost per 100 possible man-hours of work averaged only 8.7 in all plants having a 40-hour schedule and 8.8 in plants having schedules of less than eight hours a day.

Under the 8-48-hour schedule (8½-48 hours in one plant), 9.6 hours were lost per 100 possible man-hours of work.

Marked increases in time lost were noted when hours were lengthened beyond eight a day. Under the different schedules of nine to 9⅘ hours a day and 45 to 54 hours a week, the man-hours lost averaged 12.4. The 10-hour-day and 50- to 60-hour-week schedules had the highest percentage of time lost—an average of 14.6 lost hours per 100 possible man-hours.

Women workers apparently adjusted weekly hours to balance home and factory demands. All the women studied in each plant did not work much over 48 hours a week over an extended period. When scheduled hours were 8-40 per week, the women as a rule actually averaged 36 to 38 hours per week; under the 8- or 8½-hour day and 48-hour week, 44 and 45 hours; under the 9-54-hour schedule, 48 to 50 hours. When factory hours were 10 daily and 54 to 60 weekly, women averaged 48 to 52 hours.

On plant records, "personal illness" was the most frequently reported cause of lost time, but many of the women workers admitted to interviewers

that they stayed home when they were "not really ill but just too tired to go to work."

An interesting special analysis was made in one aircraft plant to determine the relation of lost time to marital status, age, number of dependents, and race. The analysis showed that single women were more regular in attendance than married, widowed, or divorced women, and that among the single women the age group 25 to 45 was most regular in attendance.

This plant had four different sets of scheduled hours at different periods of time. In each of the first three periods (8-48, 9-54, 10-50), the proportion of women losing time was highest among women under 25 years of age and lowest among women 45 years of age and over.

As would be expected, women workers with children under 14 years of age lost more time per week under the longer hour schedules than did women without dependents. Under the 8-48-hour schedule, the women with children lost a half hour more per week than did women without dependents, and under the 50-, 54-, and 60 hour schedules, they lost one hour and 40 minutes more per week than did women without dependents. Older dependents apparently did not make undue demands upon women workers as judged by the proportion of women who lost time.

EFFECT ON HOME LIFE

Because of the necessity for expanded production during the war, married women were urged to take jobs, and thousands of them did so, with the result that, for the first time in the history of this country, the labor force actually included more married women workers than single.

It is not surprising, then, that 65 per cent of the women covered in the Women's Bureau study were married, widowed, or divorced. Under peacetime conditions, it is probable that the percentage of married women in any large group of women workers would not be so high. Since, however, long-term trends point to ever-increasing proportions of married women in the population and in the labor force, the effects of longer hours on the home life of women workers, as shown in this wartime study, have significant peacetime implications.

Half the married, widowed, and divorced women covered by the study said they had the general responsibility for the home and did the major part of the work. Over a third of all households in which married or widowed women lived had children under 14 years of age.

Of all the women in the study, 82 per cent lived in family households, an additional 11 per cent had their own apartments or housekeeping room, and only 7 per cent roomed and boarded.

Thirty-six in every 100 women interviewed not only had the responsibility for the family but did the major part of the housework themselves. This included marketing and cooking for two meals a day plus the weekly tasks of washing, ironing, and housecleaning. Half the women shared the household duties with other members of the family. Only 9 in every 100 women reported that they lived at home but assumed no continuous household duties.

With this picture of the home responsibilities of women factory workers, it is not difficult to imagine what happened in their personal lives when hours were lengthened to 48-, 54- or 60 per week.

Fatigue caused by the double burden of heavy home duties and longer factory hours accumulated to the point where women admittedly stayed home from work because they were tired rather than ill.

Under each schedule of over eight hours a day, about ⅓ of the workers did not get more than seven hours' sleep regularly. The proportion with less than six hours' sleep was higher under the 9½- or 10-hour day.

In a typical factory, the longer work schedule increased the number of women who had an over-all day of 18 to 19 hours. Under the 10-hour day work schedule, only ⅕ of the women reported that they secured 8 hours' rest in bed each day.

COMMENTS BY WORKERS

For married women, this long day was almost a continuous round of chores. "I seldom go out and it is growing very boring to live like a machine from Monday through Saturday. It's very tiring," said one woman. Other typical comments were: "You meet yourself coming and going." "I used to enjoy caring for my grandson; now I find he annoys me."

Under the 10-hour day, single women who usually attended the movies, or went dancing, bowling, or visiting in the evenings after work had to limit their recreation chiefly to Sundays.

A woman working on a 9⅘-hour schedule in a plant making Diesel engines said, "I didn't like the 9⅘-hour day at all. Shopping conditions were bad. You had to break your neck to get there before 6. Those 9⅘ hours were too much. There was no time for leisure. I was exhausted and got many colds."

A young girl in a radiator manufacturing plant who lived with her grandmother had this to say about longer hour schedules: "On the 8-hour day I can go to the City on the bus after work and return, but I couldn't do it on the 10-hour day. I couldn't shop either, on the 10-hour day, so grandmother had to do everything."

A married woman working in a hosiery mill described her day: "I always get up at 5:45 to make my husband's lunch and get his breakfast. After breakfast I dash off to be at the factory at 7 o'clock. Under the 9½-hour day, I tried to slip out at noon to do my food shopping because the stores were closed at night. My husband got home at 4:15 and would have to wait until I got home at 5:45 and got his supper."

When women visited in their homes were asked what hours they preferred to work, taking into consideration the loss of overtime pay when hours were no more than 8 a day and 40 a week, 40 per cent said they preferred the 8-hour day 40-hour week because the greater amount of free time meant more to them than the extra money from overtime.

The 8-hour day 48-hour week was preferred by 19 per cent, but these women were thinking in terms of their wage scale in 1944 and 1945, and

their preference for longer hours was primarily due to pressing financial obligations and to their need for the extra money that work over 40 hours brought.

The attraction of overtime pay was explained by a woman in a hosiery mill: "When I know I am going to get overtime, I am going to get to work even if I have to let my housework go. It may mean that dress, or a little more money for something you have been planning for, that you can't get without overtime pay."

WHAT ARE OPTIMUM HOURS?

It is probable that optimum hours for women from a production standpoint, under peacetime conditions, would fall somewhere between 40 and 48 a week, while optimum hours from the standpoint of good attendance on the job and from the standpoint of meeting the preference of women workers would be near 8 hours a day and 40 hours a week.

What Changes Should Congress Make in Labor Legislation?

MILL & FACTORY recently questioned business leaders, representing all types and sizes of manufacturing companies, as to their opinions on some of the major changes in labor legislation which may be considered by the new Congress. The survey results show:

1. That 55.62 per cent of the respondents feel the Wagner Act should be modified.
2. Almost 100 per cent advocate banning the closed shop.
3. Unions should be subject to anti-trust laws, according to 96 per cent.
4. Almost all believe unions should be made to publish audited statements of their finances.
5. Mass picketing should be outlawed, according to 97 per cent.
6. Strikes in public utilities and industries vital to public welfare should be outlawed, according to 97 per cent.
7. All respondents advocate outlawing jurisdictional strikes and secondary boycotts.
8. All strikes should not be outlawed (78 per cent).
9. Only 35 per cent believe in compulsory arbitration of disputes.
10. Strikers against government operation should not be subject to conscription in the armed services, according to 66 per cent.

HOW TO CREATE SALARY GRADES

By EDWARD N. HAY*
Personnel Officer
The Pennsylvania Company
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Continuing the discussion of salary grades begun in the November, 1946, issue of *Personnel*, Mr. Hay treats here a number of matters which must be considered in the initial construction of a scale of salary or wage grades. In logical steps he shows how to plot a scattergram which will depict the vast array of salaries and point values; describes a number of methods of determining the relation between evaluation points and salaries; and outlines a practical method of finding the slope of the salary curve. Other important steps—e.g., selecting rate intervals for hourly jobs, setting rate ranges for salaried jobs, placing the salary grades on the line of best fit and calculating the point and dollar limits—are covered in similar detail.

IN any attempt to evaluate salaried or hourly jobs, some formal arrangement of jobs into salary or wage grades is desirable. If evaluation is expressed in point values, the additional problem arises of relating compensation to point values in some systematic manner.

BEGIN BY PLOTTING A SCATTERGRAM

As soon as point evaluation has been completed, we are faced not only with the problem of the relation of points to dollars but also with the necessity for some convenient method of visualizing the entire array of relationships. The chart or scattergram is about the only way of comprehending so many relationships at one time.

Begin, then, by placing a point on the chart for every individual in the group whose jobs have been evaluated. It is suggested that the vertical values, or ordinates, should be the salaries paid to each person and the horizontal values, or abscissas, should be the corresponding point values. The whole array of dots thus plotted gives a picture of the dispersion of salaries as compared with job values expressed in points.

In selecting scales for the scattergram, give attention to the units so that plotting is simple. If salaries are plotted on a monthly basis to, say, $400, and if the sheet is 17 inches on that side, it will be most convenient to have each fifth-of-an-inch space represent $6 a month, or $510 for the whole width. Since only 13⅓ inches are required for $400, there is just the right amount of space left along the side for the scale units. The most satisfactory coordinate paper to use is a sheet 17 by 22 inches, with five divisions per inch each way but with no heavy lines. The effect of heavier lines at one inch intervals is to distract the eye and make it more difficult to visualize the "picture" made by the scatterplot. If the number of persons whose salaries and job point values are to be plotted exceeds 500, it is sometimes advisable to double the size of the sheet. If such a sheet is not available, two of the standard sheets can be fastened together by a backing of scotch tape.

In plotting, make one dot for every employee, and make them clear, black, and uniform in size—big enough to reproduce clearly when the chart is

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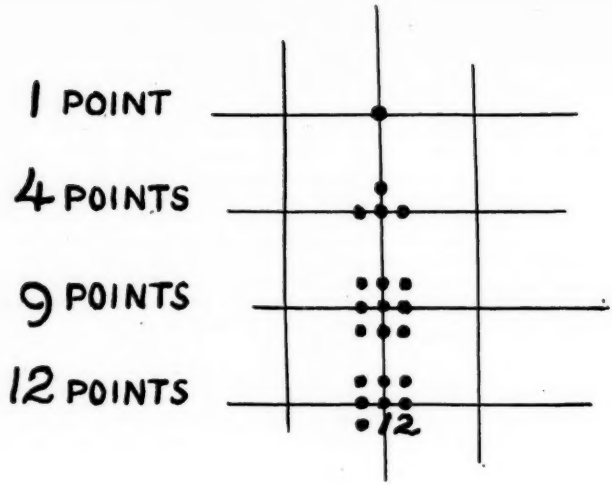


FIGURE I

photostated. If there is more than one point to plot at the same coordinates, they can be clustered around that point. (As many as nine can readily be placed around a single point on paper with divisions five to the inch.) If more than nine points are required at one place, put a figure where the ninth dot would be found; that figure will represent the total number of persons at the particular intersection. (See illustration in Figure I.)

After the chart has been completed, add the scales and appropriate legends so that the meaning of the chart will be clear at a glance. No lines of any kind should be drawn on the *original* scattergram. Instead, it should be photostated, first in negative and then in as many positives as are desired. Lines can then be drawn on the positive photostat and different experiments tried until the final choice of lines is made. These photostats can usually be made half-size or quarter-size. Figure IIa shows a scatterplot before any lines are drawn.

A scatterplot should be made as soon as about one-quarter of the evaluations have been completed. Thus, if 400 jobs are to be rated, make the first scatterplot when about 100 jobs have been evaluated. When this initial chart has been plotted, the date and the number of jobs plotted should be written on a little square of paper and be photostated with the chart itself, so that at any time thereafter every chart can be identified fully from that data.

FINDING THE RELATION BETWEEN POINTS AND DOLLARS

First, let us assume that a "single-rate" structure is to be developed from the scatterplot. Let the further assumption be made that there will be a

single rate of pay for each different point value. Another requirement may be added: that the total of all salaries at the new rates should be approximately the same as the present total payroll.

These rates will be found on the "line of best fit," i.e., a line of "minimum deviation." The line of minimum deviation is simply a smooth line, either straight or curved, from which the sum of the distances of all the points is a minimum. The line of minimum deviation will be almost identical with the line of "least squares" * unless there are some points a considerable distance away from the greater mass of other points.

As a practical matter, the line of least squares is often not worth the trouble involved in its calculation, and the line of minimum deviation cannot easily be calculated at all. A practical solution is to employ a piece of string, swinging it across the array of points until the approximate center of the array is located. A line drawn to correspond with the string will prove accurate enough for practical purposes, assuming that the relationship of points to dollar values can be represented by a straight line (see Figure IIb). If the relationship is curved, the line of best fit can generally be determined accurately enough by bending a long and flexible ruler, or other straight edge; and, with the help of another person, running a pencil along the straight edge (see Figure IIc). To verify the accuracy of the line, compare the sum of

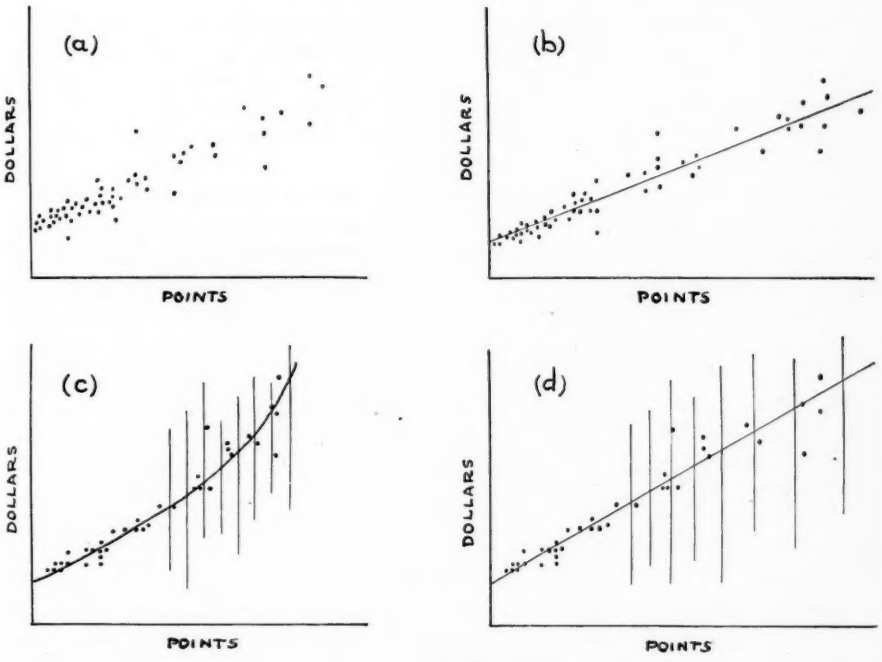


FIGURE II

* See *Statistical Procedures and Their Mathematical Bases*, by Peters and Van Voorhis (McGraw-Hill Book Company, Inc., New York), page 426.

the salary values of points above the line with the sum of those below. Such a test should be made before finally accepting *any* line of central tendency, though for salaried jobs the comparison should really be between jobs over the salary maxima and those under the minima.

In plotting factor comparison point evaluations against salaries, the line will almost invariably be straight. This is because in factor comparison points and salaries are identical or else both progress geometrically. Thus both axes progress at the same rate so that the resulting line is straight. Plotting from predetermined point plans gives a line that is concave upward; because, while the points progress with arithmetic increases, the salaries advance geometrically. A curved line is inconvenient to work with. One remedy is to plot on semi-logarithmic paper, but this is not much help because with this kind of paper it is difficult to visualize the significance of the array of points (see Figure IId).

In locating the line of best fit, it is usually desirable to disregard extreme variances. In salaried groups there is sometimes a small number of persons whose salaries have increased way out of proportion to their accomplishments. Occasionally this is simply because management persists in giving regular increases year after year regardless of the value of the employee or his work. In other cases an employee may somehow have lost his grip and been demoted without any change in salary. These extreme cases distort the picture of the rate situation.

Figure IIIb is a scattergram of a large bank with five very high-salaried persons of the type mentioned in the second illustration above—those who have been unable to perform their former high-paid jobs and have been assigned to easier work without reduction in pay. (Often, of course, it is undesirable to reduce the pay of a long-service employee under such conditions as these.)

Figure IIIa depicts another condition that is sometimes encountered. This represents a life insurance company where an extensive system of pneumatic tubes conveys papers from one department to another. They are all cleared through a central dispatch point. This job had traditionally been filled by men, though the work was light and of the simplest nature. The

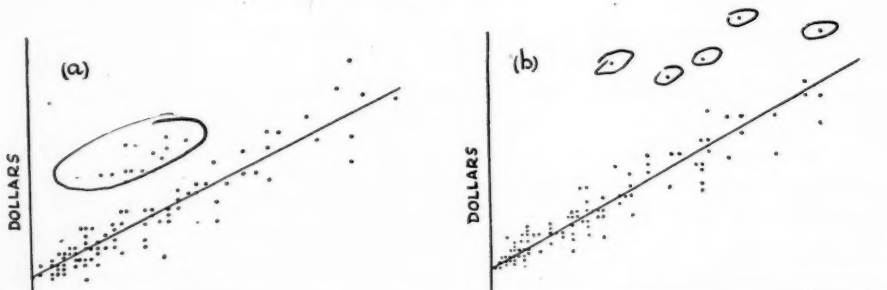


FIGURE III

salaries of the incumbents were gradually increased, with some regard to their family responsibilities but without much consideration of the simplicity of their work. During the war it was necessary to put young girls on this job. At present the job is manned partly by middle-aged and elderly men, partly by young girls. The fact that young girls can do the work indicates that experience or physical requirements are not of great importance in this situation. The salaries of the male incumbents have been disregarded here because in the future the job will be manned by youngsters at appropriate salaries. The men will gradually be transferred to other suitable work.

In general, then, the most desirable central line is the one which is representative of the greatest number of cases.

The line of best fit represents the mean or middle values of salaries *now being paid* for jobs of all difficulty. It is not assumed that management will necessarily accept this line merely because its use as a base for salary grades will involve the least departure from existing rates and present total payroll.

Management may wish to undertake a market survey and be guided to some extent by its findings. Some installations have been based on "key jobs" whose rates were the outcome of a market survey. In one such instance the key job line was found to be about 5 per cent above the mean line based on existing salaries of *all* jobs, with the result that a substantial increase in salaries was required. In another similar case a company found itself committed with the union to an unexpectedly large general increase, the result of ignorance of the possibilities in such situations.

In another firm the salary grades were based on the values of 11 key jobs. Later this line was found to be 4½ per cent below the mean line for all jobs, with the result that the initial salary standards were unfairly set about 4½ per cent too low.

What has been described here is a method, or device, which can be applied as management wishes or as management and union may agree.

Sometimes a surprising situation comes to light when a line of best fit is located on a scatterplot. For example, the wage earners and salaried employees of a public utility were evaluated simultaneously by factor comparison. When all jobs were plotted on the same scattergram, a much wider than usual dispersion was revealed. When the wage jobs and the salaried jobs were plotted separately, the reason for the dispersion instantly became apparent. The sketches in Figure IV reveal what happened. It can be seen that the wage line is relatively flat, due to the fact that pressure for wage increases was felt most heavily on the low-priced jobs. The salaried jobs, on the other hand, were found to be relatively higher-paid at the upper end of the scale than at the lower. Thus the two lines intersect. In this instance the company decided that, since a 100-point job in each group was of the same difficulty and importance, a different rate could not consistently be paid for a salaried job of 100 points than was paid for a wage job of the same point value. Many more salary and wage adjustments were necessary in order to conform to the combined rate line than would have been required if the two distinct lines had been retained. Nevertheless, the equity of identical rates for jobs of the same difficulty and importance is apparent. This

is a condition which exists almost universally in industry, and it calls for careful consideration by management. Of course, the condition will not be revealed by any evaluation method which cannot appraise both kinds of jobs at the same time with the same scale. This is always feasible with the factor comparison method, properly applied, but is rarely possible with predetermined point methods, since the latter cannot usually evaluate unlike jobs with a single set of scales. However, some companies might prefer to retain the two different rate structures, since they represent two distinct but well-established ways of paying.

FINDING THE SLOPE OF THE SALARY CURVE

We have considered how to plot a scattergram and how to locate the line of best fit. Next comes the process of determining the formula which expresses this line. This can be done by using the formula $\mathbf{y = a + bx}$, taking the values of a and b derived for the line of best fit by the use of the method of least squares, already referred to. Or, if the line was drawn by inspection, the values of a and b can be found by reading from the scattergram the dollar and point values of two points on the line of best fit; one near the upper end and one near the lower end. Refer to Figure V, where a circle has been drawn around two such points. The coordinates of these points are:

For the lower point, $x = 74$, and $y = 60$
For the upper point, $x = 269$, and $y = 200$

Next, determine the slope of the line from these two pairs of values.

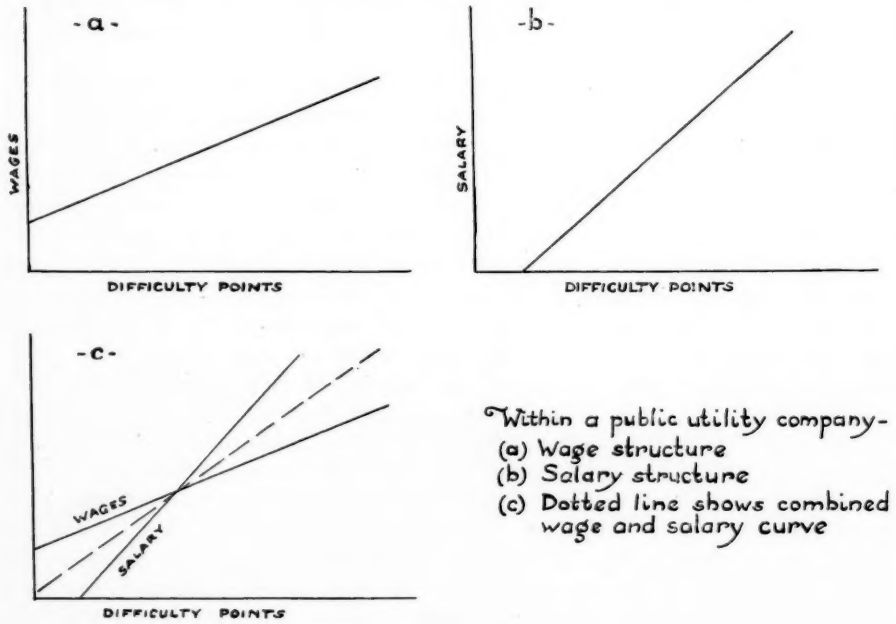
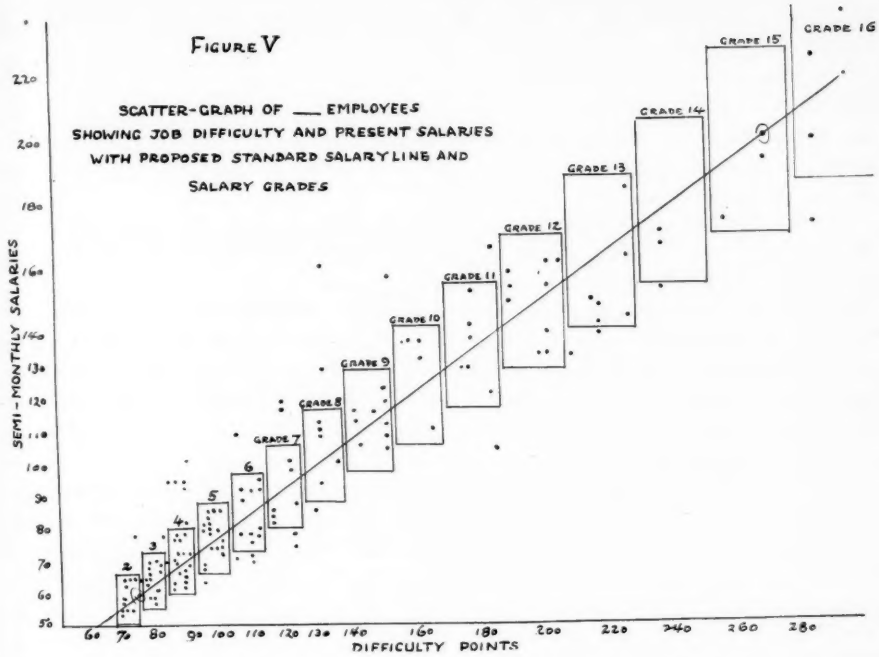


FIGURE IV



This is a familiar and simple algebraic process in which the slope is expressed by

$$\frac{y_1 - y_2}{x_1 - x_2}, \text{ which is } b \text{ in } y = a + bx$$

$$b = \frac{200 - 60}{269 - 74} = \frac{140}{195} = .71795$$

From $y = a + bx$
$a = y - bx$

When y is 60, $a = 60 - (.71795)\ 74$
$= 60 - 53.1283$
$= 6.8717$

When y is 200, $a = 200 - (.71795)\ 269$
$= 200 - 193.1285$
$= 6.8715$ (check)

This is a very practical method of determining the slope of the line of best fit when that line is found by inspection, i.e., by the use of a piece of string. It provides a satisfactory approximation of the a and b values found by least squares, where b in this case equals .71959 and $a = 6.4199$.

SELECTING RATE INTERVALS FOR HOURLY-PAID JOBS

In some companies the rate interval occurs at every cent of difference. This is true of the companies whose rates were shown in Figure II. However, rate intervals of three, four, five, or six cents are more common. In theory, these intervals should progress geometrically, but as a practical matter uniform

arithmetic intervals are probably best. Whatever is done is a matter of choice or of custom.

Instead of having a single rate for each job, many companies establish rate ranges for all or most jobs. In such cases the employee is often advanced from minimum to maximum by automatic increases. When this is true, the final rate should be considered the equivalent of the single rate, if single rates had been used.

One company adopted the practice of giving automatic increases from the starting rate to what would correspond with the single rate; while from the center or single rate the increases to maximum were on a merit basis. Theoretically this is sound procedure, but in practice merit increases are difficult to administer, especially where each increase must be justified, as is usually the case where the workforce is unionized. Union pressure tends either to compel automatic raises or to bring about single rates. As has been said, wherever there is *automatic* progression, the top rates should ordinarily be regarded as the equivalent of a single-rate structure.

Still another variation was found, in a unionized company, where the lower-paid jobs carried automatic increases to rates on the line, which would correspond to the single rate if there had been no ranges. The higher-paid hourly jobs were increased automatically to the line, and merit increases were given above the line.

RATE RANGES FOR SALARIED JOBS

In most salaried groups rate ranges are the custom. This, of course, is primarily because of the flexibility essential in a salaried group, where employees develop as they gain experience. Where a rate range exists, it is customarily agreed that the middle of the range should be on the line of central tendency, or line of best fit, corresponding to a single rate. The range should be extended below the line for new employees and above the line for employees of longer experience who perform meritoriously. Here again, as in hourly jobs, union pressure may tend to bring about automatic increases for all employees. Thus the top rate, rather than the middle of the range, tends to become the standard. If such a situation arises after the adoption of rate ranges for the first time, a considerable increase in salary expense will be entailed. In this connection, the compa-ratio is a device which helps keep salary totals at an appropriate point—say, the middle of the range, on the average. (The compa-ratio will be described in a subsequent article.)

It has been shown that rate intervals for wage jobs usually are uniform, whether one, two, three, four, five, or six cents. In salaried groups the intervals must be geometric. (This has been adequately dealt with in a previous article.*) The number of grades in a given situation—in other words, the progression factor, or rate of progression—must be based on the actual situation found in the particular company. The usual progression factors are 9½, 10, 11, 12, 13, and 15 per cent.

A greater rate of progression offers fewer promotions for employees (because there are fewer salary grades), but these larger intervals are some-

* Edward N. Hay, "The Characteristics of Salary Grades," PERSONNEL, November, 1946.

what easier to measure in evaluation. Long experience shows that 9½, 10, and 11 per cent intervals are perhaps the most common in large salaried organizations and are certainly easy to administer. Twelve per cent is, however, not excessive, though 15 per cent is. Table I presents several different sets of salary grades at different rates of progression.

TABLE I

SALARY GRADES AT DIFFERENT RATES OF PROGRESSION
(Salaries in Dollars Per Month)

f = 1.095*	f = 1.1	f = 1.11	f = 1.12	f = 1.15*
85–115	90–120	90–120	85–113	85–115
95–125	99–132	100–133	95–127	100–135
105–140	109–145	110–148	107–142	
115–155	120–160	123–164	119–159	115–150
125–170	130–176	137–182		130–175
135–185	145–193		134–178	
150–200	159–213	152–202	150–200	150–200
165–220	175–234	168–224	168–224	175–230
180–240	193–257	187–249	188–250	
200–265	212–283	207–276	210–281	200–265
220–290	233–311	230–307	236–314	230–305
240–320				
260–350	257–343	256–341	264–352	265–355
285–380	282–375	284–378	296–394	
315–420	311–414	315–420		305–410
345–460	342–456	349–466	331–441	355–470
No. of Grades..... 16	15	14	13	11

* Smoothed to nearest $5.

The advantage of a low rate of progression such as 10 per cent (producing the greatest number of separate salary grades in a given range) is to make finer distinctions between jobs and therefore to permit more promotions to an employee who progresses from a beginner job to one at a fairly high salary.

One of the disadvantages of such fast progression as 15 per cent is that, with the smaller number of grades, jobs of substantially different difficulty will fall in the same grade. Thus, if in Grade 9 the range of points is from 100 to 115, a 115-point job would be of approximately 15 per cent higher salary value than a 100-point job. When jobs are so far apart as this, they should not be in the same salary grade. Of course, there is a problem with jobs whose point values fall at or close to the margin of two adjoining salary grades. In one organization there is a promotional sequence of five jobs, which fall in Salary Grades 8, 9, 10, 11, and 13. The rate of progression is 9½ per cent. If the progression were 15 per cent, these five jobs, which now range through five levels, would be distributed on only four levels. Putting it another way, there are now four promotions where, under a 15 per cent progression, there would be only three. Practical experience with 9½ and 10 per cent progressions shows that, if employees are carefully selected, few of them get "stuck" at beginner job salary grades. They usually are promoted through several grades without attaining the maximum of any but the last

grade. (A forthcoming article in this series will deal with methods of salary adjustment and salary cost control and will throw further light on the problem of more or fewer grades.)

THE VERNIER EFFECT

Though salary grades may advance by 10 per cent intervals, the *factors* in the factor comparison method which the author uses advance by 15 per cent intervals. At first glance, it would appear impossible to make reliable distinctions in salary grades at 10 per cent intervals when the constituent factors advance 15 per cent at a time. However, instead of there being only one jump of 15 per cent from one grade to the next, there can be at least seven small jumps, made possible by different combinations of only three factors. See Table II for an illustration.

TABLE II

	Point Values							
Skill	53	47	41	47	53	47	41	53
Mental	53	53	61	47	53	53	61	61
Responsibility	53	61	61	70	61	70	70	61
	159	161	163	164	167	170	172	175
+10%	16							
	175							

The factor values, at 15 per cent intervals, are 36, 41, 47, 53, 61, 70, 81, etc.

When five factors are employed, the vernier effect is even more pronounced. The reliability of measurement of the grade intervals is therefore based on the known reliability of measurement of the single factors, increased considerably because the vernier effect permits more variation of the individual factor values without, however, changing the salary grade.

PLACING THE SALARY GRADES ON THE LINE OF BEST FIT

Two ways of locating the line of best fit have been mentioned: by the method of least squares and by inspection, using a string or a straight edge. How to arrive at the values of a and b has also been indicated. Next comes the problem of placing the salary grades on this line of best fit and calculating the point and dollar limits. In making these calculations, a starting point is essential. This could be the minimum salary of some set of chosen salary grades such as one of those shown in Table I.

A large life insurance company whose scattergram is depicted in Figure V decided that it would be convenient to begin at the lowest cluster of present salaries, which are found in the scattergram at $50 per half-month. The lowest point values are seen at 67 points, and this was chosen as the *approximate* point minimum. However, only *one* starting point, either salary or point values, can be used, and $50 per half-month was selected as that point.

Inspection of various sets of salary grades and consideration of the conditions and customs existing in the organization influenced the decision to use a 10 per cent interval between salary grades.

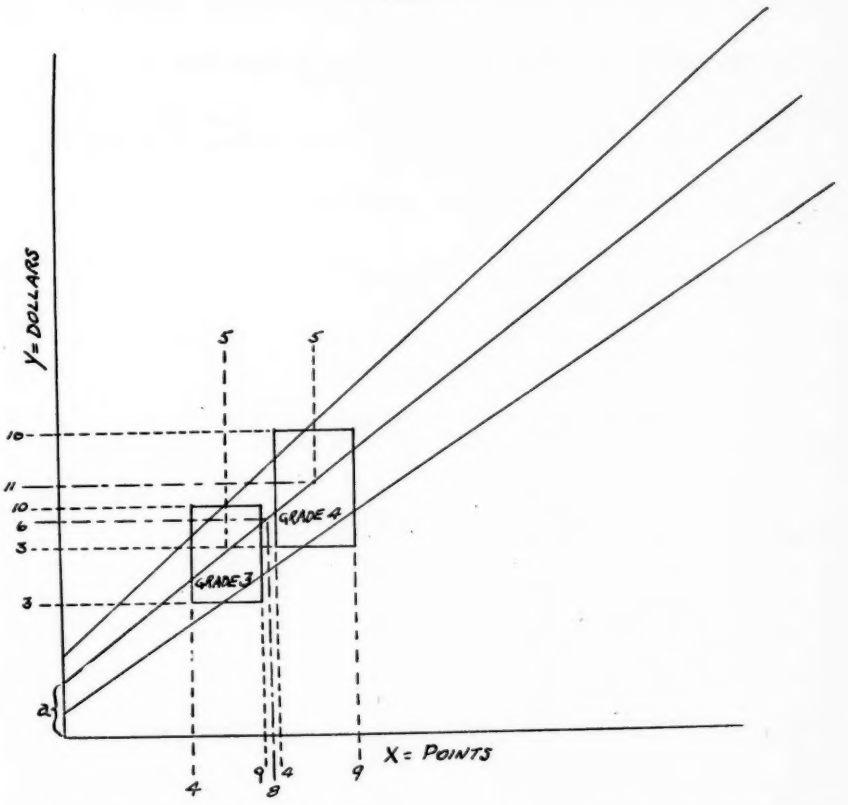
The known values to begin with were, therefore:

y = 50 dollars, the salary minimum of Grade 1.
f = 1.1, the rate of progression in salary grades.

a. The exact salary maximum Grade 1 (see 10 in Figure VI) $= 1\frac{1}{3} \times$ Min.
$= 1.3333 \times 50$
$= \$66.6666$

So, the rounded salary maximum is $67 (to the nearest even dollar).

FIGURE VI



3 = SALARY MINIMUM—ROUNDED
4 = SELECTION MINIMUM—ROUNDED
5 = GEOMETRIC POINT MID-POINT
6 = SALARY "HALF-WAY" POINT
8 = SELECTION MAXIMUM—EXACT
9 = SELECTION MAXIMUM—ROUNDED
10 = SALARY MAXIMUM—ROUNDED
11 = GEOMETRIC SALARY MID-POINT

$y = a + bx \quad a = y - bx$

$x = \frac{y - a}{b} \quad b = \frac{y - a}{x}$

a = CONSTANT VALUE

b = RATIO $\frac{y}{x}$ = SLOPE OF THE LINE

b. The salary midpoints for all grades will be needed as a base for calculating the other values in all grades.

Salary midpoint Grade 1 (see 11 in Figure VI) = salary minimum $\sqrt{1\frac{1}{3}}$
= 50 × 1.1547
= $57.7350

c. The salary midpoint for Grade 2 = salary midpoint Grade 1 × 1.1
= 57.7350 × 1.1
= $63.5085, etc.

d. It is also necessary to calculate the maximum *point* value for each grade, so that the correct salary grade can be identified for a job of any given point value. This exact point maximum is at 8 in Figure VI. It can be calculated from the salary value at that point by means of the formula $x = \frac{y - a}{b}$, y is at 6 in Figure VI at the coordinate (where x is indicated by 8). This value of y is called the "halfway point" i.e., halfway between the values of y at the salary midpoints for Grades 1 and 2.

y (the salary ½ way point) = $\sqrt{1.10}$ (salary midpoint Grade 1)
= 1.0488 × 57.7350
= 60.5525

Now, to find the "exact maximum selection point," which is an x value:

$$x = \frac{y - a}{b} = \frac{60.5525 - 6.4199}{.71959} = 75.2270$$

which is seen at 8 in Figure VI. It is convenient to take 75 as the "rounded selection point maximum" of Grade 1 and 76 as the "rounded selection point minimum" for the next higher grade.

Table III

SELECTION POINTS AND DOLLAR VALUES FOR ALL SALARY GRADES

Grade	*Salary Minimum Round $*	*Salary Maximum Round $*	*Selection Points Minimum Round*	*Selection Points Maximum Round*
1	45.	60.	61.	66.
2	50.	66.	67.	74.
3	55.	73.	75.	82.
4	60.	80.	83.	91.
5	66.	88.	92.	102.
6	73.	97.	103.	113.
7	80.	106.	114.	125.
8	88.	117.	126.	138.
9	97.	129.	139.	153.
10	106.	142.	154.	169.
11	117.	156.	170.	187.
12	129.	171.	188.	207.
13	141.	189.	208.	229.
14	155.	207.	230.	252.
15	171.	228.	253.	278.
16	188.	251.	279.	307.
17	207.	276.	308.	339.
18	228.	304.	340.	374.
19	250.	334.	375.	412.
20	276.	367.	413.	454.

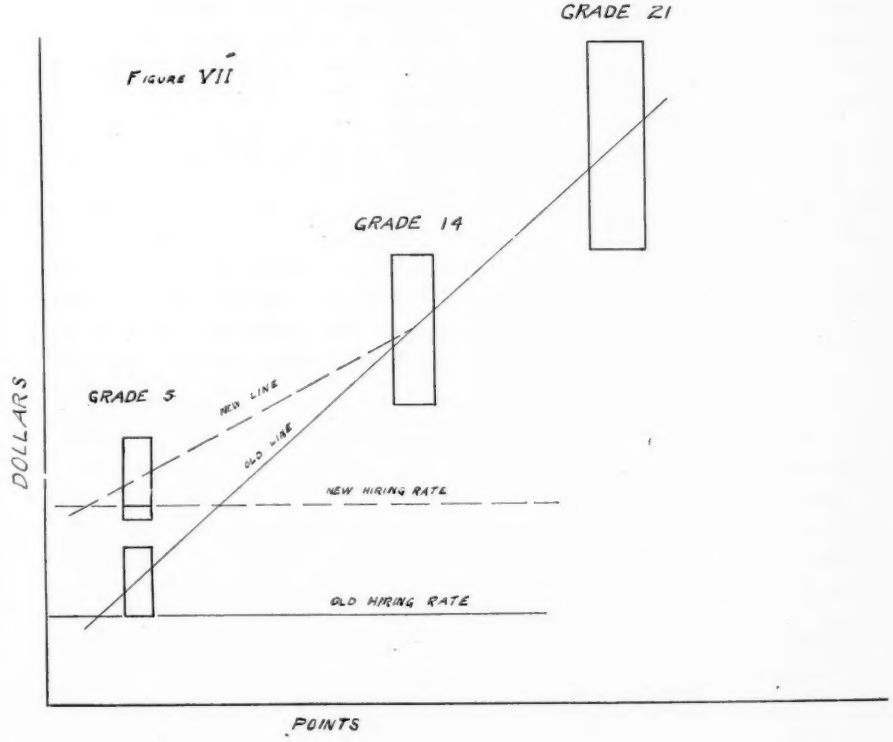
Three boundaries have now been calculated for Grade 1: salary minimum and maximum and selection point maximum. The remaining boundary is the selection point minimum, which can be calculated in the same way as the maximum. The result is 67.5783. Under the rule just mentioned, this would give a rounded selection point minimum of 68. The four boundaries of Grade 1 are now:

	Exact	*Rounded*
Salary Minimum	$50.0000	$50.
Salary Maximum	$66.6666	$67.
Selection Point Minimum	67.5783	68 points
Selection Point Maximum	75.2270	75 points

Unfortunately this brings the selection point minimum out at 68 and leaves a few 67-point jobs by themselves in the next lower grade. By a slight shift in these values, it is possible to obtain the following more satisfactory result:

	Exact	*Rounded*
Salary Minimum	$49.5550	$50.
Salary Maximum	$66.0717	$66.
Selection Point Minimum	66.8961	67 points
Selection Point Maximum	74.4778	74 points

The complete values for all salary grades are shown in Table III.



Sometimes the hiring rate will have been pushed up rapidly and, as a result, it will be necessary to raise the salary brackets. It is not essential that the salary minimum of the lowest grade be exactly the same as the hiring rate. It *is* necessary that the maximum salary of the lowest grades be *above* the hiring rate, so that employees may be given salary increases without pushing them above their bracket maxima. In a previous article the method of changing brackets was described and illustrated by two actual cases.

Figure VII shows how the lower brackets have been increased without changing the upper ones. This was necessary in order not to increase total salary costs too greatly, while still raising the lowest brackets. This is not the best solution because it means more favorable treatment for the grades up to Number 14 and discriminates against grades 15 and above. Also, it introduces the undesirable condition of a broken rate of progression. That is, the progression is at two different rates: in the upper and lower salary grades. There is no reason why the new line at the lower end could not be curved, to smooth the transition. However, this would usually not be of any practical value.

The next article in this series will discuss "spread" or "range"—the amount by which maximum salary exceeds minimum—with special reference to the effect of this spread on cost control.

TRAINING AND ATTITUDE BUILDING THROUGH PLANT BROADCASTING

By GIL BECK and EARL PLANTY*

A recent adaptation of the public address system in a plant of Johnson & Johnson suggests new possibilities for educating workers and bettering management's internal public relations. This article describes the company's experiments with in-plant broadcasting and indicates its effectiveness in helping solve such specific problems as housekeeping difficulties, adjustment to new machinery, unexcused absenteeism, etc. A substantial increase in employee efficiency at this plant (36 per cent) is credited in part to the broadcasts. An appendix to the article features a sample script.

I. EDUCATIONAL IN-PLANT BROADCASTS

FOR about two years Johnson & Johnson, and especially its division, Ethicon Suture Laboratories, has been experimenting with in-plant broadcasting for educational purposes. The use of in-plant educational broadcasting has proved a valuable aid in increasing output and reducing manufacturing costs. Experimental in-plant broadcasting has helped increase production and improve morale. *As an outgrowth of this improved morale and productive effort, the efficiency of all plant labor has risen 36 per cent.*

These experiments were carried out at the Ethicon Suture Plant, a division of Johnson & Johnson, in which almost all production workers are women, engaged in finishing catgut, silk, linen, and all other sutures for the medical profession. The plant is a very modern structure, air-conditioned and located on a "campus" of 100 acres, beautifully landscaped, and situated in the country about three miles from New Brunswick, New Jersey. The plant has been wired for sound since its construction, and previous to these experiments phonograph records were played two or three times daily.

Much of the value resulting from these educational broadcasts came in increased teamwork, better cooperation, willingness to work, and interest in the product and production. These general intangibles are not measurable directly, except as they contribute to the 36 per cent increase in production mentioned above. However, many specific problems were attacked and solved, and there is fairly reliable evidence of the effectiveness of broadcasting in eliminating various difficulties. The experiment described below began about two months after educational broadcasts had been initiated.

GLASS BREAKAGE

The Problem. The problem involved was that of housekeeping in a very modern factory. The personnel were almost all female and nearly all pieceworkers who, as production men know, are not often interested in spending time on other than productive work. The specific problem was that of keeping broken glass off the floor of a manufacturing plant where surgical sutures are wound on reels for insertion into glass tubes—which, when carelessly handled, occasionally fall to the floor and break.

Previously Attempted Solutions. The first attack upon the problem of reducing broken glass on the floor was launched by supervision. Supervisors

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met with the workers and made plans to keep this glass off the floor and to see that it was cleaned up when it did fall. No discernible results were obtained. Another attack on the problem was made through a private appeal to the worst offenders—those whose floor areas appeared to be most littered with broken glass. A very slight improvement was noted. Next, management made a direct appeal over the public address system to all workers, soliciting suggestions on how this glass problem might be solved. Employees were reminded of the usual financial reward given for suggestions. There was no noticeable improvement and no suggestion forthcoming.

Proposed Solution. It was then decided to attack this problem through the medium of entertaining broadcasts—dramatic skits in which the workers themselves would participate and part of which they would write. The nature of this attack was to be dramatic and humorous, but the serious consequences that might result from leaving broken glass on the floor were to be highlighted. Three short broadcasts of about 10 minutes each were planned.

During the series a few jingles were developed and sung. A line or two was added to the jingles at each broadcast. These jingles were "don't-drop-glass-on-the-floor reminders." Six or eight male employees sang them after the first broadcast, an equal number of female employees sang the jingles at the second broadcast; and mimeographed sheets were passed out to the whole group, who sang the rhymes after the last performance.

Control of the Experiment. For a two-week period previous to the experiment the weight of broken glass swept from the floor was determined. After the previously attempted solutions, the weight of waste glass swept from the floor averaged, over a two-week period, 16 ounces, or 72 glass tubes per day.

Results. There were three broadcasts in the series, one on January 4th, one on January 9th, and the final one on January 18th, 1945. Weekly averages were kept of the broken and powdered glass swept from the floor following these programs, and from January 25th through March 1st the average weight of the glass sweepings ranged from five ounces for one week to a low of two ounces for another. Periodic checks on the amount of waste glass have been made regularly for the past seven months since this program series was completed. The performance is consistently good, and at no time since the series was completed has the weight of waste glass exceeded five ounces. A copy of one of the three scripts and of the jingles used in this series appears in the appendix to this article.

It may seem ridiculous to place so much emphasis on a few pieces of crushed glass or to attempt to justify so expensive an installation by a single case of this type. It must be remembered, however, that in a hospital supplies industry cleanliness and purity are prime requisites. It must also be remembered that a high degree of efficiency along these lines had already been achieved. The problem was to reach the very highest level possible—an objective that was not unreasonable for an industry making supplies for medical use.

II. ORIGINAL OUTLINE OF PLANS FOR EXPERIMENTAL BROADCASTS

Preliminary to the introduction of educational broadcasts a plan was

carefully prepared. Excerpts of the plan as it was written at the beginning of the experiment are presented below:

A. Objectives

The broad, long-time purposes of this program are four in number: 1. To build group feeling through participation; through identification with the Suture group, including management, to encourage teamwork. 2. To relieve monotony. 3. To release individual employee initiative by encouraging employee thought and participation and by opening avenues of expression. 4. To establish desirable patterns of thought and action by defining standards and illustrating acceptable patterns of behavior. By illustration, example, repetition, by a thousand and one varied means, to hold up before each employee a picture of the ideal Johnson & Johnson worker—in time to get him to identify himself with and duplicate this model, or stereotype.

Caution. It is neither possible nor desirable to create this stereotype by naïve description of an ideal worker. An experience common to all of us is the negative response of the bad boy in the family who has been compared unfavorably with his model cousin. Any attempt to influence employees as directly or as simply as this can easily lead to resentment, ridicule and the development of an organized hostility.

Any attempt to educate, to indoctrinate with a public address system, is closely akin to propaganda. Propaganda convinces or alienates. Psychologists are finding that there is not much middle ground. People accept or reject propaganda. They are not often neutral toward it. Entertainment is not so emotionally charged as facts or opinions and therefore not so dangerous. There is more middle ground in the response to entertainment and, therefore, throughout these programs a large part of the time is devoted to unadulterated entertainment from which no resentment can possibly flow. Moreover, all broadcasts, even the most educational ones, must, if they are to be effective, be entertaining as well as instructive.

Making propaganda (this is a bad word but an honest one) entertaining, dramatizing it, requires a specialized knowledge of how people react. Heaven forbid that anyone should forget this vital fact and indulge in the dangerous luxury of unplanned, unrehearsed, untested broadcasts.

B. Program Content

The contemplated broadcasts are expected to run from two to 10 minutes, probably the shorter the better, and are referred to hereafter as "spots." The success of the spot broadcast program depends primarily upon employee interest, enthusiasm, and participation. Educational spots are preceded by pure entertainment designed to attract attention to the broadcasts and to accustom employees to the new program. Careful investigation of subject matter possibilities reveals three general areas. They may be classified roughly as pure entertainment, information, and education. Following is a more detailed description of these three categories.

1. ***Pure Entertainment.*** Pure entertainment spots should be designed simply to entertain, to get attention, and to build an attitude of friendly acceptance of the broadcasts. They should precede, or be interspersed among, the informational and educational spots. Through them it should be possible to dispel any employee distrust of the purpose of the broadcasting. They will also have a positive value in themselves in eliminating boredom.

Some of the subjects which might be used on such entertainment "spots" are as follows: personals about Suture employees; local recreation and eating places; reviews of current movies; summary of the latest news obtained from radio or late papers; transcriptions from national radio programs; music or other entertainment, recorded and live, produced by J & J employees (songs, instruments, etc.); shopping news, consumer information; local or national union notes; reports on J & J parties; athletics—reports on in-plant baseball, basketball, bowling contests; fashion hints—what's new this season; and mountain music, southern songs, marches, popular music.

2. ***Information.*** Information spots are designed to bridge the gap between entertainment and education. They are instructional in purpose; at the same time, they are less specific, less direct, than such educational spots as those dealing with wages, housekeeping, job methods, or work habits. Like the entertainment spots, these informational broadcasts should be used to maintain employee interest. In any 10-day period there might be about five entertainment spots, three informational, and two educational. This ratio will be governed by experience with employee-listener response.

Some of the subjects for informational spots are as follows: how to treat colds, poison ivy, heat prostration; educational facilities in New Brunswick; diet—what to eat in hot spells, vitamins, balanced meals; personality development hints; men of the hour (one minute each on Churchill, Stalin, and Truman, for example); recipes; how to fill out income tax forms (at appropriate time of the year); fuel conservation; fireproofing a Christmas tree.

3. ***Education.*** The educational spots must be colorful, personal, dramatized. In short, they must be entertaining. They must not be moralistic or scolding in tone. They should be democratic rather than authoritarian. They should include a variety of methods —lecture, monologue, group discussions, narrative, drama, interview, etc.

The directly educational program should be closely related to the workers and to the work being done in the department, to the product being manufactured, or to the history of the department and the background of the materials used there. Below are listed some of the proposed subjects.

a. Suture: Historical background of surgery: superstitions relative to science of medicine, witch doctors, potions and cures, early prescriptions, panaceas, development of surgery, modern surgical skills; place of sutures in surgery, plastic surgery, wartime discoveries. Importance of cleanliness. The source of sutures. Types of sutures and the purposes for which they are designed.

b. Company Report to Employees: Sales by dollar volume with percentage increase over previous years, distribution of sales dollar, number of employees, size of payroll, plant expansion plans, postwar business prospects.

Other topics of an educational nature are: orderly housekeeping; participation in the suggestion system; using employee services; mutual responsibility of management and worker; safety; value of satisfied customers.

It was stated in the discussion of objectives that one purpose of this broadcasting was the development of desirable employee attitudes and actions. To some extent attitudes and actions will be influenced by pure entertainment and information. However, the presentation of a pattern of behavior for the ideal J & J employee must be done largely through these educational spots.

III. FURTHER RESULTS

UNEXCUSED ABSENTEEISM

Many experiments beyond the one described at the outset have now been completed, all with good results. One of these was designed to reduce unexcused absenteeism. During the winter and early spring there developed a high rate of absenteeism, a large portion of which was unexcused. The unexcused absences were of short duration and were usually for legitimate reasons, but the absentee was just not taking the trouble to call the plant to explain his absence. This upset production schedules and broke up production teams without notice, thus hampering alternative arrangements.

A take-off on some of the popular national hookup broadcasts has been used effectively in our studio. In this case we used the title, "The Lone Stranger," and shaded the names of the principal characters, using the same music and sound transcriptions as the big-time show. In our show the "Lone Stranger" can always solve the problem, and he did so here with the aid of a script prepared cooperatively by the program director, the plant manager, and an employee committee. Eight employees including the union steward participated in the presentation. Unexcused absences declined from 10 per cent of all hours worked to 3 per cent during the six months following the broadcast.

RESISTANCE TO CHANGE

Another example of the use of the in-plant broadcast concerns the well-known human characteristic, resistance to change. Some months ago a new

machine was installed which gave rise to a noise similar to a small air compressor stopping and starting; the intensity of this was not great enough to seriously disturb any employee.

Employees were prepared for the change but, promptly after the new tube-labeling machine was installed, vigorous complaints were registered by most of the operators who worked in the adjoining area. Typical complaints were: "It makes me nervous, and I can't keep my mind on my work," and "You can't hear the music over the noises of that infernal machine." Supervision handled these complaints as best it could. The machine operator became unpopular with her fellow workers, and several months passed before the problem subsided.

In June another new machine was brought into the plant. This second machine made it possible for this plant to produce a new product, and management was naturally enthusiastic about it. The machine, however, despite attempts at noiseless design, made considerable noise of an irritating nature. The noise, which is that of a small air hammer, is not unlike that of a high-class, but loud, Bronx cheer. It is appreciably greater than that caused by the first machine.

In the light of the previous experience with noise and resistance to change in the working conditions of the plant, it was considered advisable that employees be better prepared and conditioned before the machine was put into operation.

A broadcast program involving the shop steward and the plant manager was developed, illustrating dramatically the concept of new methods and new machines as factors that make it possible for the company to continue to pay higher wages and improve other conditions for the employees, e.g., provide additional holidays, surgical benefits, wage increases, etc. Specific cases were used to illustrate how fear and ignorance have blocked scientific progress throughout history.

Though this machine is in the same working area as the tube-labeling machine and affects the same workers much more severely, the new machine was put into operation with only a few mild complaints.

IV. SCRIPTS

Some of the scripts are decidedly amateurish. Some are written by the program director and edited by the plant manager; others are written by the program director, a former radio announcer, who collects ideas from a workers' committee established to help in the preparation. In still other cases production workers play a more creative part, actually writing part or all of the script. The union steward is one of the most active participants. Problems are attacked directly in some scripts; others assume an indirect approach. All strive to use employee talent to the fullest possible extent.

Programs are presented in a studio adjoining the main workroom. About half the workers may see the show from their workplace through glass panels. Shows are put on both during working hours and during the noon-time lunch

period. When they are given during working hours, employees are free to gather around the studio windows or to continue work, as they see fit.

CONCLUSION

Experimental educational broadcasts, amateurish as they appear, have proved their merit during the past two years. Their value lies in creating increased employee participation in the solution of problems and increased capacity for teamwork and cooperation. It must not be thought that this device alone can produce a 36 per cent increase in production. Good management policies, supervision, standard personnel practices, job and supervisor training, scientific selection and placement, fair wages and good physical working conditions have all contributed heavily. They have provided the setting within which educational broadcasting could succeed.

Appendix

In the script below, the Lone Stranger, a champion known to employees from previous broadcasts, is called upon to settle the mystery of a great increase in broken glass. This is the second broadcast in the glass series. All the characters are employees.

The Winding Room Mystery

Good afternoon everybody: JJES signing on with our own version of The Winding Room Mystery. Yep, you guessed it—the Lone Stranger. I'm not going to try to introduce the cast of characters—you'll recognize them as we go along. Now for our story—The Winding Room Mystery. (THEME UP AND UNDER) Out of the West he comes to fight another battle against tyranny and crime! The charging boots of the great white stallion and the piercing cry of the Lone Stranger ring out of the western sky! Introducing to you—that fiery man who rides with the speed of light, and flees with a hearty . . . (THEME OF HORSES HOOFS UP)

L. STRANGER: Hi Ho Sylllllvia: (THEME AND HORSES HOOFS FADE)

JANSON: Yes, it's your friend and mine, the Lone Stranger.

SANTO: Ugh! (WITH VEHEMENCE.)

JANSON: I'm sorry, Santo. That was Santo, folks, telling us that he's in the play, too. The Lone Stranger has come to Milltown to settle one of the strangest mysteries ever to befall this peaceful little community. It seems that the amount of glass on the floor of the winding room one day last week was four times as bad as usual. This is serious, and our hero has called to do something about it.

STRANGER: Come on, Santo. Some ornery, snake-bellied critter is back of all this broken glass, and I aims to git to the bottom of it. Those gals have kept glass off the floor all these weeks and tomorrow they would have received a popsickle for doing a good job.

SANTO: Ugh!

STRANGER: By golly, Santo, you're right. Someone must have planted that stuff all over the floor.

JANSON: The Lone Stranger steps inside the door and as soon as he opens it he is greeted with:

NOISE OF WOMEN TALKING EXCITEDLY

STRANGER: Stop, stop, I say—hear me. There must be a solution. (NOISE DIES OUT GRADUALLY—WAIT FOR IT TO STOP.) I come

out here to git to the bottom of this, and if necessary I'll git a posse and comb the countryside for the scoundrel who creates unrest among these faithful, steady winders.

CHEERS

I'll set my office up in the first-aid room and first of all I want to talk to the night watchman, Slewfoot Batson.

JANSON: Slewfoot Batson sulks behind the Lone Stranger into the first-aid room, firing vile epithets and blasphemy at the Lone Stranger and Santo. Listen to him hurl . . .

BATSON: Darn—darn—darn! If we wasn't on the air, I'd tell him off.

SANTO: (TO BATSON) Ugh! (SANTO TWISTS BATSON'S ARM—BATSON SQUEALS.)

BATSON: O. K. Redskin, I'll behave. I won't curse no more.

SANTO: Ugh!

BATSON: Sure, sure, I seen the ladies. I won't cuss again, I tell you.

STRANGER: Sit down Batson and let's hear your story.

BATSON: I ain't talkin', seeeee. I don't know nothin'.

STRANGER: Santo, persuade our friend Batson to talk.

BATSON: (CRIES OUT IN PAIN) Take him off. I'll talk.

STRANGER: O. K., out with it. How did all the glass git on the floor?

BATSON: You win. (HUMBLY) It was Nellie O'Dell—my tootsie special.

STRANGER: Your what?

BATSON: That's my pet name for her—she's my girl— but she didn't mean it. I swear when I came in early this morning and saw all the glass on the floor, it was under Nellie's desk. I made it look like everybody put it there.

STRANGER: O. K., you can go now, Batson. Send Nellie in here.

NELLIE: You wish to see me, kind sir? [Nellie is a popular, well-liked girl.]

STRANGER: Yes, Nellie, and I won't beat around the bush. You know more about this glass business than you pretend to. Tell us the truth, and you won't be hurt. How did the glass git on the floor?

NELLIE: I didn't do it.

SANTO: Ugh!

STRANGER: Out with it Nellie, what's your game? We know the glass was under *your* table.

NELLIE: I have no game, sir. I'm just a young, untouched girl—untainted by wordly things and unsullied by base and evil. I am in the throes of love, sir—with a dream boy.

STRANGER: You mean Slewfoot Batson?

NELLIE: Lord, no. This boy, Willie, came to me in a dream whilst I wound sutures and placed them in hermetically sealed tubes prior to their being sterilized and prepared for professional use because all the leading hospitals in the country prefer Ethicon Sutures. They say . . .

STRANGER: Nellie, we all know that. Now please get to the point.

NELLIE: Well, this fellow—I still don't know his last name—invited me on a picnic.

STRANGER: In your dream?

NELLIE: Yes, in my dream. Where else? I wore a pretty blue dress which I borrowed—after my sister went out. I packed a nice lunch and waited patiently for him. Then it began to rain. I felt so bitter, I almost cried—except that I didn't want him to see me looking sad and upset. Willie came and looked so nice, and he could see that I was disappointed, so instead of cussing like Slewfoot does, he came up close to me and sang:

"WAIT TILL THE SUN SHINES NELLIE"

I sang with him. I know that song. (SHE JOINS HIM. THEY SING.) All this time I was winding Sutures and absent-mindedly dropping glass on the floor. I was horrified when I saw what I had done and I was terribly disappointed at missing the end of the dream,

so I ignored the glass and tried to get the dream back by singing. (REPEAT "WAIT TILL THE SUN SHINES NELLIE.") (TEARFULLY) The dream wouldn't come back (OVERCOME) and the glass piled up and everybody came by and kicked it all over so I went home before quitting and clean-up time—perfectly miserable.

STRANGER: So that's your story, and it seems very possible. But the girls and our housekeeping reputation will suffer.

NELLIE: Yes, I know, and I'm sorry but I'll never put faith in dreams again. I'll pay attention to my work and remember that cleanliness is next to godliness, so I'll be a little angel and keep my work area clean.

SANTO: Ugh!

STRANGER: By golly, Santo, you're right. Let's reward everybody for helping solve this mystery. We could go and arrange a picnic for June 22nd at Patrick's grove and invite everybody. [This is a plug for an actual picnic being planned in the unit.] (HORSES HOOFS)

NELLIE: Lone Stranger, come back. Where are you going? I want to kiss you.

(QUARTET OF EMPLOYEES THEN SING.)

Some of the verses prepared by workers and sung during the broadcasts are as follows:

Similar to Campbell Soup commercial

U-um good, U-um good,
That's what Suture girls are,
U-um good.
As much as we're able,
We keep glass on the table
What drops on the floor,
Makes us aching and sore,
Keep glass on the table, good, good, good.
(Sing first three lines, narrate next four, sing last one.)

Similar to tune of Pepsi Cola commercial

Pieces of glass hit the floor
Break into a thousand more
Twice as many to cut our toes
Glass droppers create all our woes.

* * *

Pieces of glass in the way
Mean danger is here to stay
So, much as we're able
We'll keep glass on the table
And make safety assured for the day.

THE POOLED JUDGMENT PROCESS IN HUMAN RELATIONS

By ELLIS C. MAXCY
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The process of pooled judgment, whereby a group cooperatively develops pertinent facts and forms balanced conclusions, has been used to considerable advantage in medicine and social work. While its application in the field of personnel administration has been largely confined to job evaluation and employee rating procedures, there are indications that it may come into broader use. The pooled judgment process should not be expected to produce uniformly sound and perfect decisions, but it is a technique which, when properly understood and utilized as the author recommends, can help to reconcile the divergent points of view inherent in many personnel problems.

WHILE various types of committees are widely used in industry, the specific organization of committees as a means of pooling judgments and producing factually organized conclusions is a development of recent years. This development has been most marked in two principal human relations areas—in job evaluation procedures and in employee merit rating.[1] Limited use has been made of this device in labor-management committees engaged in joint and non-negotiable projects. Experiences in these fields have convinced some observers that the principles employed have wider application. As it seems likely that this type of group thinking will increase, some discussion of its underlying concepts may be of interest.

THE OBJECTIVES

An executive is faced daily with the necessity for making decisions which affect the interest and welfare of many persons. Often these decisions are complicated by technical problems and confused by the introduction of conflicting points of view. As an individual, he faces the limitations of incomplete information and the possibility that his previous experience may bias his judgment. Such information as is available to him may not be put to effective use in forming the decision unless other points of view are brought into the picture. These complications and confusions make it difficult for a single person holding a post of authority and responsibility to make sound judgments on matters which involve information from several sources. The information from these sources must be integrated if the pooled judgment method is to be effective.

THE PROCESS MUST BE LEARNED

The manner in which judgments are introduced vitally affects the entire process of pooled judgment. This process must be carried on in a manner that is considerably different from a committee meeting, an argument, or a debate. The assumption is not that one individual shall convince another that his conclusion is right, but, first, that all parties to the pooling are intent upon the most effective assemblage of the facts and, second, that the facts are used to develop a logical conclusion. Thinking together is a different

[1] R. C. Smyth, and M. J. Murphy, *Job Evaluation and Employee Rating*, McGraw-Hill Book Company, Inc., New York, 1946.

process than that of comparing several persons' individually worked out opinions.

The process of pooled judgment has been used considerably in medical and social work. In both these fields, the impartial and careful assemblage of facts long has been stressed as fundamental. The technique of forming cooperative conclusions also has been widely adopted. The experience developed in these fields should offer encouragement to the field of personnel work where the same necessity for pooled judgment exists. It is self-evident that the need for developing and increasing employee satisfactions demands all possible implementations of objective and logical reasoning processes.[2]

SUBJECTIVE CHARACTER OF PERSONNEL JUDGMENTS

One of the difficulties of developing effective and consistent procedures in personnel work lies in the subjective character of the information which is to be dealt with. Not only is this information often vague, but also it contains a large number of variables. For instance, the problem of the individual attitude of employees is a matter of prime concern. This problem in itself is intangible and may have as its cause a wide variety of factors. Group discussion of such problems tends to give them clarity if it breaks up, isolates, and defines them to produce greater objectivity.[3] This objectivity in turn permits the more ready arrangement of the various phases of the problem in logical steps directed toward a conclusion. The continued practice of a group of individuals in the use of group judgment develops in it a group judgment skill which makes the process increasingly effective.

CHARACTERISTICS OF THE POOLED JUDGMENT PROCESS

The pooled judgment process is distinguished by six definite characteristics:

1. A common body of information for discussion. All parties to the process should have full access to the same information.
2. A common understanding and use of words or terms important to the subject being discussed. The semantics of human relations is an area of increasing importance because words not only suggest ideas but attitudes as well. In forming a judgment it is not only important that we say or write what we wish to convey but that we avoid using words or terms which convey other than intended meanings.[4]
3. An agreement regarding the facts and the issues involved in the decision. Agreement becomes easier as meanings are clarified.
4. A cross-stimulation of ideas through discussion. This can incorporate points of view developed at different organization levels by persons of differing status, which when reconciled, improve over-all organization communication.
5. A development of common conclusions. The general support of conclusions is a by-product of participation. It is not to be assumed, however, that conclusions need be unanimous to be an effective product of the process.
6. A check of the conclusions by application to a sample group or test situation.

It has been indicated that the facts must be assembled before the pooling of judgment in regard to a conclusion can take place. It is essential, also, that *the facts be put into a pattern* that is logical to the group considering the

[2] Ordway Tead, "The Development of Leadership Power," in *Human Factors in Management*, edited by S. D. Hoslett, Park College Press, Parkville, Mo., 1946.
[3] H. S. Elliott, *The Process of Group Thinking*, Association Press, (Nat'l Assn. of the Y.M.C.A.), New York, 1928.
[4] W. Johnson, *People in Quandaries*, Harper & Bros. New York, 1946, Chap. VI.

problem. The formation of this pattern is itself a part of the pooling process.

Two types of information commonly are presented in personnel decisions —tangible or objective data on wages, lost time, etc., and the more intangible or subjective data relating to attitudes and responsibilities. The handling of both of these types of information requires skill which can be developed through experience. In the case of tangible and objective data, understanding of the meaning of the information is usually relatively clear. However, in the case of intangible and subjective data, there is usually a need for agreement by the group upon interpretive definitions by which the subjective information is to be considered. These differences are well illustrated in job evaluation procedures where jobs are rated under such factors as Responsibility and Mental Application. In these factors care has been taken to create common standards and relative objectivity by definition established in advance by the group.

DEVELOPING THE SPIRIT OF THE POOLED JUDGMENT PROCESS

Once the facts related to the subjects under discussion are assembled, it is necessary that they be discussed in a cooperative spirit. This implies that all the factors and all their meanings shall be made known and shared among all members of the group. Such a process demands frankness and a readiness to exchange facts. While it is too much to hope that statements by participants shall be completely free from bias and prejudice, the discussion of these points of view by the other persons in the group will tend to eliminate bias and develop an adequately balanced consideration of the problem.

Often in the beginning of the pooling process, some difficulty is experienced in developing the full spirit of cooperative thinking because of a marked bias on the part of some member of the group. Sometimes, however, this difficulty is not solely the responsibility of the individual, but rather of the group he represents. Any group member feels a strong obligation to represent the prejudices of his organization and his boss. Until that boss also understands the process and its values, little can be done to lessen this difficulty.

DEALING WITH PREJUDICE

The presentation of the facts and the development of the spirit of the pooled judgment process are both fundamental to the ruling out of prejudice and bias. When varying points of view are adequately represented, it is usually possible to establish a common set of objectives. When the entire group is pointed toward these objectives, it becomes possible to explore the agreements and disagreements within the group and to expect that the discussion will henceforth revolve about the *facts*.

Sometimes a situation will develop that calls for strong emotional reaction in defense of a point of view. While it is preferable to forestall such an outburst until after the basis of discussion is established, such reactions must be expected. A group gradually learns to dispose of the problems of bias or prejudice of its own membership by reviewing the facts. Sometimes tension is dissipated by a humorous treatment of the situation. Experience has shown that after a group has worked together consistently for some time, lapses into bias become less and less frequent.

RESPONSIBILITIES OF THE CHAIRMAN

It is the responsibility of the chairman of the group engaged in pooling judgment constantly to observe the principles which have just been discussed. In addition, it is important that he do considerable preparatory thinking for meetings. Such preparation will go far toward developing orderly discussion.

In the meetings the chairman must function as a member of the group. He must be a good coordinator and cooperator. His contributions along these lines rest partly in seeing to it that the routines associated with the meetings contribute to informality. It is his responsibility to keep the issues clear and to center the discussion about them. Especially in discussions concerned with abstract matter, he should stress the objective elements as they are developed.[5]

One of the criticisms frequently leveled against group thinking of any kind is the length of time it consumes. The chairman can do much to minimize waste of time and utilize the efforts of the group most effectively.

EFFECTS UPON LINES OF ORGANIZATION AND AUTHORITY

One of the most important personnel problems to come to the fore in recent years is that of communication. Numerous communication devices, such as plant papers, bulletins, etc., have been developed for disseminating information to employees at various levels. The principal flaw in such communication media is that, while information gets down the line to employees, their reactions and viewpoints are not similarly reflected up the lines of organization to higher management. The effective use of the informal processes of pooling judgment tends to encourage persons in group meetings to express their real feelings. Here may be a means of opening a two-way avenue of communication.

CONCLUSION

In their present state, our human relations problems should be approached through every device that will make for better, fairer, and more logical conclusions. While pooled judgment should not be expected to produce uniformly sound and perfect decisions, it is a technique which, when properly understood and utilized, can work constructively in advance of action to reconcile factually the various points of view inherent in many personnel problems.

The pooled judgment process is one whereby factually developed information from a variety of sources is made available to the organization's experts. The development and administration of human relations in the present period of rapid changes can be facilitated by combining the judgments of those who are technically well equipped and occupy strategic positions in the organization.

[5] Ordway Tead, *Human Nature in Management*, McGraw-Hill Book Company, Inc., New York, 1933, Chap. XIV.

WHEN THE UNION MOVES IN

By RUSSELL L. and ELIZABETH B. GREENMAN

The employer who faces a union organization drive for the first time often is a pathetic figure. He is frequently at a complete loss as to what attitude to adopt, and what he may say or should do, during a union campaign. Helpful suggestions on strategy for the inexperienced negotiator are offered in this article, which has been adapted by the authors from their recently published volume *Getting Along with Unions* (Harper & Brothers, New York).

WHAT should management do when confronted for the first time with a union organizing campaign? Usually it is too late to do anything except try to keep from running afoul of the National Labor Relations Board, and to make the best bargain that can be made under the circumstances.

Employees join unions for various reasons. In most cases, they are sold on the idea by professional organizers who are most astute in ferreting out causes of dissatisfaction or unrest. Once the majority of the employees in a recognized type of bargaining unit have signed up with a labor union, nothing that management might want to do in the way of argument or persuasion could have any result other than to solidify their ranks.

Of course, management has the right to make certain that a union claiming to represent its employees actually does represent them. An employer may have sincere doubts as to whether a union represents a majority, or he may feel certain that the proposed unit is inappropriate for the workers in his plant. It is up to the National Labor Relations Board to decide the question of representation. This may be done by checking the number of signed union cards against the names on the employer's payroll, or by the secret ballot method. But before the Board can conduct an election and certify the representative union, it must first ascertain whether the employees to be represented comprise an appropriate unit. The unit may be an employer unit, a craft unit, or an industrial unit. It may include employees of several crafts or departments in one plant. Or it may include the employees of several plants owned by the same employer. Before the Board reaches a decision as to what combination of employees is a proper unit for collective bargaining purposes, it takes several important factors into consideration.

DETERMINING THE BARGAINING UNIT

One of these factors is the history of the organization itself, i.e., the type of workers it has customarily included and the extent of its membership in the past. The Board investigates the history of collective bargaining among the employees involved, as well as among other employees in the same industry, to determine the degree of success it enjoyed as a collective bargaining unit.

In fixing the "appropriate bargaining unit" the Board is usually willing to go along with the desires of the interested parties. Usually, when there is only a single union seeking recognition and the management and the union can get together on the unit, the Board will accept their conclusions. If, how-

ever, the union and management disagree, or if there are two or more unions in the picture with differing proposals regarding the unit, the Board will decide the matter by holding a formal hearing at which all parties in interest are permitted to express their views and present arguments to support them.

If there is a disagreement as to what group of employees is to be included in a bargaining unit, and the parties cannot settle the dispute with or without an agent of the Board, usually the Board orders that an election be held, setting forth the conditions of the election and stating who is eligible to vote.

WHEN FORMAL HEARINGS BECOME NECESSARY

When there are rival unions contesting for recognition and any one of them protests against one of the others being permitted to participate in the election, or if management challenges the right of one or more of the unions to have its name on the ballot, then the Board may hold a formal hearing, take testimony, and then issue an order setting forth the terms of the election. No employer has to agree to an election at any time. He should, however, have good and sufficient reasons for objecting to a consent election, lest some of his employees suspect he is stalling for the purpose of obstructing unionization or showing a preference for one or another of the competing unions. Obviously, if an employer thinks Union A is weak and Union B strong, but he favors Union A, he may want to delay an election so as to enable Union A to have more time for organizational purposes. He has the right to delay proceedings by insisting on a formal hearing, and this may hold up an election for several months. He always runs the risk, however, unless his motives are sincere and his objections to a consent election are well founded, that his employees will "smell a rat." Since some union circles preach suspicion and distrust of management's motives, there is always a chance that delaying tactics will prove to be a boomerang. In other words, when an employer obviously indicates a preference for one labor organization over another, without having solid economic reasons for his preference, the workers will choose the organization which the employer favors less.

WHEN MANAGEMENT'S VIEWS CARRY WEIGHT

This does not mean that management cannot openly express its views as to which of two or more unions it would prefer to deal with. Suppose a company is in the construction business and its products are handled exclusively by members of certain craft unions—or that its products are sold extensively in an industrial town which is almost completely "sewed up" with CIO unions. In either case it would be in the interest of the employees, as well as of the company, for them to affiliate themselves with a labor organization that lines up with the unions which handle or buy the products that they make.

Once a union has been certified and is ready to commence contract negotiations, it is impossible to determine in advance exactly what strategy should be followed by management.

STRATEGY MUST BE FLEXIBLE

The principles that apply in the negotiating "game" differ very little from those used by a player in a tennis match. The player may have developed

a style all his own that he knows is good—the cups he has won attest to that. He may have a perfect trick serve and a drive that never fails. But he has learned that his own faultless playing is not the whole success story. Whenever he meets a new opponent he has to get the hang of the other man's technique, then quickly adapt himself to his opponent's style of playing. After the first few shots he begins to study his adversary and anticipate his moves; he learns his weaknesses and plans counterplays that will break down his strong points.

Nor is there any cut-and-dried, sure-win method that can be followed in negotiating. You do not know what you are up against until the match is on. The negotiator does not just come into the conference room with his case all wrapped up in the bag. He knows that the union is going to have a surprise package or two for him. The idea is to hear the other side out, get a line-up on their motives, then start planning and making counterplays that will keep the ball rolling. Collective bargaining is a two-team game, and there is no reason why one side should always be on the offensive and the other on the defensive. Management has just as much right to strike out with counterproposals as the unions have to make new and bigger demands.

AVOIDING DEADLOCKS

The idea, too, is to keep from reaching an impasse. With a little ingenuity, the management representative can keep the whole assemblage in a cheerful mood by dodging, for the time being, any issue that looks as though it might develop into a deadlock.

It is an art to keep the meeting in a friendly spirit, but this must be done if any agreement is to be reached. It is an art to know when to call a recess, when to parry with a philosophical retort, when to laugh off a ridiculous proposal, when to be stern and let the union spokesmen know they have overstepped their bounds. There is a proper time for everything. And the best guide for doing what the occasion calls for is to keep the main objective—the reaching of an agreement—in mind all the while, but at the same time to keep in tune with the opponent's mood at the moment.

There are special talents which must be inherent in the nature of the negotiator. A simple understanding of human nature serves him far better than the most extensive study of procedures, laws, decisions, and bargaining techniques. The collective bargaining process is not a matter of deliberate weighing of evidence, but one of being able quickly to discern the other fellow's motives, of dealing with personalities and not facts alone—and of calling bluffs.

OBLIGATIONS OF THE COMPANY SPOKESMAN

Throughout the negotiating of a new contract, the purpose behind all the horsetrading that goes on should not be lost sight of. Management's objectives are to do all it can to satisfy the employees and at the same time to wind up with a contract that helps the furtherance of the business. Management is dealing with the employees through the union, it is true, but it should be borne in mind that the union also has its own interests to look after. When the union appears to be more concerned with its own security than it is with the real wants of the employees, or when it seeks to usurp management's functions,

then it is up to the company representative to fight for terms that he knows are soundest for all parties concerned.

The management spokesman, in fulfilling this obligation to the company, should remember and keep remembering this: that it is the spirit with which management bargains that counts more than anything else. Bargaining can be friendly yet firm; it can be kept in a spirit of mutual respect without loss of management prestige. In fact, management prestige mounts with every demonstration of management's ability to remain calm and to be receptive of the union spokesmen's viewpoints.

Bargaining between management and the union is meant to provide a means of exploring each other's mutual and individual problems, and thus learning more about one another. The bargaining table is not the place to demonstrate superiority, or anger, or hatred. For the management representative to foster a spirit of hostility, intolerance, and caste-consciousness is pure folly. The ability to create a spirit of friendliness, tolerance, and equality is one which every management negotiator would do well to cultivate.

PUBLICATIONS RECEIVED

[*Please order books directly from publishers*]

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